BY

M. VERNON JOHNS, JR.

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AUGUST 20, 1981

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ABSTRACT

The basic problem of determining objective (frequentistic) confidence bounds for the reliability of a series system based on failure data from tests of the independent components is addressed. The notion of confidence bounds based on orderings imposed on the sample space is exploited, and certain optimality considerations are incorporated. Advantage is taken of the simplifications resulting from the use of the Poisson approximation for data from highly reliable components. Tables of exact confidence bounds are produced for the case of two-component systems. These bounds are computed using sample orderings generated sequentially by a two-stage, prospective optimization procedure. A generalization of the Lindstrom-Madden technique is proposed for using the tables to find confidence bounds for systems consisting of more than two components with differing sample sizes.

Key Words: Reliability, series-system, confidence bounds, Poisson approximation, Lindstrom-Madden, sample orderings.

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1. Introduction

Certainly one of the most basic statistical problems in the assessment of system reliability is that of determining a confidence bound on the reliability of a series system based on component failure data. The continuing appearance of papers concerned with this subject (e.g., Harris and Soms 1981, Butcher et al. 1978, and Winterbottom 1980) testifies to the elusiveness of solutions which are both practically feasible and acceptably precise. The present paper deals with the case of systems characterized by high intrinsic reliability (>90%) where the use of the Poisson approximation for the binomial distributions of component failure data does not introduce appreciable error. The emphasis is on objective, frequentistic confidence bounds which avoid the uncertainties of interpretation associated with posterior bounds obtained by Bayesian methods. of the Poisson distribution provides several advantages. It easily leads to valid results for cases involving zero observed failures for some components where maximum likelihood methods and other proposed approximations tend to break down (see, e.g., Madansky 1965 and Mann et al. 1974). It also permits the pooling of failure data for different components having the same test sample sizes. This potential reduction in the effective number of system components enhances the utility of tabulated bounds such as those presented here.

Because of the structure of the problem, universally optimal confidence bounds for system reliability (i.e., "uniformly most accurate" bounds in the sense of Lehmann 1959) do not generally exist. On the other hand, the ideas of Buehler (1957) may be exploited to produce a variety of valid confidence bounds based on total orderings of the sample points. Such bounds are exact in the sense that the desired coverage probability is guaranteed. The construction of good confidence bounds is thus reduced to the selection of suitable orderings imposed on the sample space. This is the approach adopted in the present study. Previous applications of these methods to reliability may be found, for example, in Harris and Soms (1980), Johnson (1969), and Lipow and Riley (1959).

Once the sample ordering approach has been chosen, there remains the problem of determining orderings which lead to confidence bounds which are "good" according to some criterion measuring the size (length) of the confidence region. An early proposal of the present author (Johns 1975) was to generate the ordering by means of a simple function of the observations which was asymptotically equivalent to the maximum likelihood confidence bound. This method guarantees asymptotic optimality when the numbers of component failures observed under testing is large. It was found, however, that the resulting bounds could be noticeably improved for small to moderate numbers of observed failures by more sophisticated methods. Another procedure investigated (Johns 1977) was a sequential method for generating the sample ordering starting at the origin (zero component failures observed) and selecting at each stage as the next sample

point the "adjacent" point producing the largest value for the lower bound on reliability. This method, while intuitively appealing, does not generally produce a "best" ordering as has been suggested by some investigators. In particular, it is improved upon by the method adopted in the present paper.

The non-existence of a unique optimal ordering leaves open the possibility of obtaining a confidence bound which is at least admissible by choosing the sample ordering to minimize the expected length of the confidence interval under some suitable prior distribution. Such a semi-Bayesian approach does not in any way impair the frequentistic interpretation of the confidence bounds obtained from the minimizing ordering. The implementation of such a minimization, while theoretically perfectly possible, turns out to be totally unfeasible computationally except for the earliest part of the ordering generated. Nevertheless, for a class of priors chosen to emulate certain properties of maximum likelihood, fragmentary orderings computed by this method provide a considerable justification for the two-stage "look-ahead" sequential method actually used to generate the tables which are a principal concern of this paper.

Suppose that the series system under consideration consists of k independent components and that the respective probabilities of component failure are $p_i = 1 - q_i$, i = 1, 2, ..., k. The system reliability R is given by

$$R = \prod_{i=1}^{k} q_{i} = \prod_{i=1}^{k} (1 - p_{i}) .$$
 (1.1)

If the observed numbers of failures for the k components are X_1, X_2, \ldots, X_k based on independent tests with corresponding sample sizes n_1, n_2, \ldots, n_k , we let $\lambda_i = n_i p_i$, $i = 1, 2, \ldots, k$, so that

$$R = \prod_{i=1}^{k} (1 - \lambda_i/n_i) \stackrel{\sim}{=} 1 - \sum_{i=1}^{k} \lambda_i/n_i . \qquad (1.2)$$

The approximation on the right will be best when the p_i 's (= λ_i/n_i) are all small which is just the case where R is close to one and the Poisson approximation for the distributions of the X,'s is valid.

It will be convenient to express the problem in a canonical form by introducing some further notation. Let $c = \sum_{i=1}^k 1/n_i$ and $a_i = 1/cn_i$, $i = 1, 2, \ldots, k$. Then letting $\lambda = (\lambda_1, \lambda_2, \ldots, \lambda_k)$ and

$$\theta(\lambda) = \sum_{i=1}^{k} a_i \lambda_i , \qquad (1.3)$$

we have

$$R \stackrel{\sim}{=} 1 - c \stackrel{\Sigma}{=} a_{i} \lambda_{i} = 1 - c\theta(\lambda) . \qquad (1.4)$$

We shall assume henceforth that the components are indexed so that $n_1 \geq n_2 \geq \cdots \geq n_k \text{ which implies that } a_1 \leq a_2 \leq \cdots \leq a_k. \text{ The problem of finding a lower confidence bound for R is thus reduced to that of finding an <u>upper</u> confidence bound for <math>\theta(\lambda)$. The fact that $\theta(\lambda)$ is a convex combination of the λ_i 's facilitates tabulation of the bounds by reducing the number of classification variables by one. In principle, confidence bounds for R could be constructed directly without introducing the approximation (1.2). Such an approach would,

however, eliminate the possibility of constructing useful tables of bounds, since separate entries would be required for every configuration of (n_1, n_2, \ldots, n_k) .

The vector of observations is $X = (X_1, X_2, \ldots, X_k)$ so that the sample space on which a total ordering must be imposed consists of all vectors $\mathbf{x} = (\mathbf{x}_1, \mathbf{x}_2, \ldots, \mathbf{x}_k)$ where the \mathbf{x}_i 's are non-negative integers. It seems reasonable to confine attention to orderings which are consistent with the natural partial ordering induced by dominence (see Section 2), and we shall do so. In Section 2 it is shown that the best upper confidence bound for $\theta(\lambda)$ with confidence coefficient $1-\alpha$ which is monotone in a prescribed total ordering (designated by the relation \preceq) is given by

$$t(x) = \sup_{\lambda \in S_{\alpha}^{*}(x)} \theta(\lambda) , \qquad (1.5)$$

where $S_{\alpha}^{*}(x) = \{\lambda : P_{\lambda}\{X \leq x\} = \alpha\}$. From (1.4) the lower confidence bound for system reliability is then given by

$$r(x) = 1 - ct(x)$$
 (1.6)

Because of the additive property of independent Poisson observations the effective number of components in the system may be reduced if some sample sizes are equal (or nearly equal) as follows: Suppose $n_1 = n_2 = \dots = n_r = n$ for some r, $2 \le r < k$. Then $a_1 = a_2 = \dots = a_r = a^*$ (say) and letting $\lambda^* = \sum_{i=1}^r \lambda_i$ we have

$$\theta(\lambda) = a^* \lambda^* + \sum_{i=r+1}^{k} a_i \lambda_i . \qquad (1.7)$$

Now $X^* = \sum_{i=1}^r X_i$ has a Poisson distribution with parameter λ^* so that the right hand side of (1.7) has the correct form for the case of dimension $k^* = k - r + 1$ except that the coefficients must each be divided by $c_0 = a^* + a_{r+1} + \dots + a_k$ to preserve convexity. The confidence bound for the k^* dimentional case based on X^*, X_{r+1}, \dots, X_k and the normalized coefficients may then be multipled by c_0 to obtain the bound for the original $\theta(\lambda)$ given by (1.7). Further reductions may be made in the same way if several groups of components have common sample sizes. If n_1, n_2, \dots, n_r are only approximately equal, their average may be used for n in the above calculations to obtain an approximate bound.

If all components are subjected to the same number of trials, we may take k equal to one and the problem reduces to the familiar one of finding an upper confidence bound for a single Poisson parameter.

The component failure data may be developed through independent testing of the components, or through testing of the complete system with the assignment of failures to the appropriate components. Even in the latter case component sample sizes may differ if components are redesigned during the course of testing so that the trials and failures observed prior to redesign are not relevant to the reliability of the final version of the system.

$$R = \prod_{i=1}^{k} e^{-\mu_{i}} = \exp \left\{ -\prod_{i=1}^{k} \mu_{i} \right\} = \exp \left\{ -\sum_{i=1}^{k} \lambda_{i} / \tau_{i} \right\} , \quad (1.8)$$

and the confidence bound problem is essentially the same as the one previously introduced except that no approximations are required.

The general theory of confidence bounds based on sample orderings is discussed in Section 2. In Section 3 the case of systems having two components is considered in detail, and the rational for, and use of, the tables for this case are explained. Section 4 includes suggestions for constructing approximate confidence bounds for cases of systems with $k \geq 3$ by finding approximately equivalent cases with k = 2. Use of the maximum likelihood ratio bounds for cases where the data are beyond the limits of the available tables is also discussed.

2. Bounds and Orderings: Generalities

The idea of using sample orderings to generate confidence bounds was first introduced by Buehler (1957) who discussed the validity of the proposed method in the context of a specific reliability problem. Bol'shev and Loginov (1969) discuss the construction of confidence bounds monotone in the sample orderings generated by certain functions of the observations. In the following, which is a revision and extension of Johns (1975), we develop the theory with emphasis on the sample orderings themselves rather than possible generators of the orderings.

To develop the general ideas relating exact confidence bounds to sample orderings it is convenient to introduce a fairly abstract statistical model. Let the sample space χ be endowed with a measurable total ordering relation " \leq " and let X represent the random outcome of the experiment where the space of possible outcomes is χ . Suppose that the possible distributions of X are determined by the family of probability measures P_{λ} , indexed by λ , an element of the parameter space Λ . Our objective is to find a $1-\alpha$ level upper confidence bound for a specified real-valued function $\theta(\lambda)$ defined on Λ where the range T of $\theta(\lambda)$ is assumed to be closed and bounded below. The quantity $\alpha \in (0,1)$ is regarded as fixed throughout. We make the following definitions and assumptions:

Definition D1. For each x & 1 let

$$S_{\alpha}(x) = \{\lambda : P_{\lambda}\{x \leq x\} > \alpha\}$$
 (2.1)

Definition D2. For each $x \in X$ let

$$t(x) = \begin{cases} \sup\{\theta(\lambda) : \lambda \in S_{\alpha}(x)\} , & \text{if } S_{\alpha}(x) \text{ is non-empty }, \\ \inf T, & \text{otherwise }. \end{cases}$$
 (2.2)

Remark 1. By D2 if $\theta(\lambda) > t(x)$, then necessarily $P_{\lambda}\{X \leq x\} \leq \alpha$.

Assumption A1. For every subset C of I having the property that if $x \in C$ and $y \leqslant x$ then $y \in C$, there exists an ordered sequence $x_1 \leqslant x_2 \leqslant \ldots$ of elements of C such that $C = \bigcup_{n=1}^{\infty} \{x : x \leqslant x_n\}$.

Assumption A2. For each $x \in \mathcal{X}$, if $\theta(\lambda) = t(x)$, then $P_{\lambda}\{X \leq x\} \leq \alpha$.

Remark 2. By D1, D2, and A2 if $\theta(\lambda) = t(x)$, then $\lambda \notin S_{\alpha}(x)$, i.e., the supremum in D2 is never attained.

We now establish the following propositions.

<u>Proposition P1</u>. The function t(x) is monotone in the ordering on χ .

<u>Proof</u>: If $x,y \in \mathcal{I}$ and $x \leq y$, then $S_{\alpha}(x) \subset S_{\alpha}(y)$ (D1) which in turn implies t(x) < t(y) (D2).

<u>Proposition P2</u>. Under assumptions A1 and A2 the function t(x) is an upper confidence bound for $\theta(\lambda)$ at level 1 - α . In particular,

$$P_{\lambda}\{\theta(\lambda) < t(X)\} \ge 1 - \alpha$$
 for all $\lambda \in \Lambda$. (2.3)

<u>Proof</u>: For arbitrary $\lambda_0 \in \Lambda$, let $\theta_0 = \theta(\lambda_0)$ and $C_0 = \{x : t(x) \le \theta_0\}$. The result follows immediately for all λ_0 for which C_0 is empty. Assume that C_0 is non-empty. Then by P1 the set C_0 possesses the property required in A1 for the existence of a sequence $\{x_n\} \subset C_0$ such that $x_n \le x_{n+1}$ for all n, and $C_0 = \bigcup_{n=1}^{\infty} \{x : x \le x_n\}$. This implies that, as $n \to \infty$,

$$P_{\lambda_0} \{X \leq x_n\} + P_{\lambda_0} \{X \in C_0\} . \qquad (2.4)$$

But by Remark 1 and A2, for all n, $P_{\lambda_0}\{X \leqslant x_n\} < \alpha$. Hence $P_{\lambda_0}\{X \in C_0\} \le \alpha$ and the desired result follows. \square

<u>Proposition P3.</u> Under assumptions A1 and A2, if $\tilde{t}(x)$ is any T-valued confidence bound such that $P_{\lambda}\{\theta(\lambda) < \tilde{t}(X)\} \ge 1 - \alpha$ for all $\lambda \in \Lambda$, then

- (i) $\sup_{y \le x} \tilde{t}(y) \ge t(x)$ for all $x \in \mathcal{I}$, and
- (ii) if t(x) is monotone in the ordering on χ , then $\tilde{t}(x) > t(x)$ for all $x \in \chi$.

<u>Proof:</u> First we assume that $\tilde{t}(x)$ is monotone and establish (ii). Suppose there exists an $x' \in \chi$ such that $\tilde{t}(x') < t(x')$. Then $S_{\alpha}(x')$ must be non-empty and by Remark 2 following A2, the sup defining t(x') is not attained. Hence there exists a $\lambda' \in S_{\alpha}(x')$ such that $\tilde{t}(x') < \theta(\lambda') < t(x')$, and $P_{\lambda'}\{X \leqslant x'\} > \alpha$. Thus by the monotonicty of $\tilde{t}(x)$,

$$P_{\lambda'}\{\tilde{t}(X) \leq \theta(\lambda')\} \geq P_{\lambda'}\{\tilde{t}(X) \leq \tilde{t}(X')\} = P_{\lambda'}\{X \leqslant X'\} > \alpha . \quad (2.5)$$

This contradicts the hypothesis that $P_{\lambda}\{\theta(\lambda) < \tilde{t}(X)\} \geq 1 - \alpha$ for all λ and establishes (ii). To show (i) we let $t^*(x) = \sup_{x \in \mathcal{X}} \tilde{t}(y)$ and $y \leq x$ observe that $t^*(x)$ is monotone in the ordering on χ and $t^*(x) \geq \tilde{t}(x)$ for all $x \in \chi$. Hence if $\tilde{t}(x)$ is a $1 - \alpha$ confidence bound for $\theta(\lambda)$, so is $t^*(x)$ and applying (ii) to $t^*(x)$ yields (i). \square .

In order to specialize these results in the direction of applications we henceforth assume that the parameter $\boldsymbol{\lambda}$ and the

observation X are both of dimension k, i.e., $\lambda = (\lambda_1, \lambda_2, \dots, \lambda_k)$ and $X = (X_1, X_2, \dots, X_k)$ where the λ_i 's are real and the X_i 's are random variables. Without essential loss of generality we assume that Λ contains the positive orthant. Within this framework we make the following additional assumptions:

Assumption A3. The function $\theta(\lambda)$ is continuous and strictly increasing in each of the λ_i 's.

Assumption A4. For any xell, $P_{\lambda}\{x \leq x\}$ is continuous in each of the λ_i 's.

<u>Proposition P4</u>. Assumptions A3 and A4 imply that Assumption A2 is satisfied.

<u>Proof:</u> Suppose that for some $x' \in X$ there exists a $\lambda' \in \Lambda$ such that $\theta(\lambda') = t(x')$ and $P_{\lambda'}\{X \preceq x'\} > \alpha$. Then by A3 and A4 we can find a $\lambda'' \in \Lambda$ with $\lambda_i'' \geq \lambda_i'$ for all i and $\lambda_i'' > \lambda_i''$ for some i_0 such that $\theta(\lambda'') > t(x')$ and $P_{\lambda''}\{X \preceq x'\} > \alpha$. This contradicts D2 and the result follows. \square

Corollary C1. If (i) the observations X_1, X_2, \ldots, X_k are independent Poisson random variables with parameters $\lambda_1, \lambda_2, \ldots, \lambda_k$ respectively, and (ii) $\theta(\lambda) = a_1\lambda_1 + a_2\lambda_2 + \ldots + a_k\lambda_k$ where the a_i 's are positive, then t(x) given by D2 is an upper confidence bound for $\theta(\lambda)$ at level $1-\alpha$.

<u>Proof:</u> Al is satisfied for any ordering since χ is discrete. A3 is clearly satisfied for $\theta(\lambda)$ of the form given by (ii), and A4 is satisfied for Poisson random variables. The desired result follows from P4 and P2.

The actual computation of the bound t(x) given by D2 is greatly facilitated if $P_{\lambda}\{X \leq x\}$ is monotone in the components of λ . The following proposition gives conditions guaranteeing this property:

Assumption A5. The components of X are independent and for $i=1,2,\ldots,k$ the distribution of each X_i depends only on the corresponding λ_i and is stochastically increasing in λ_i .

Definition D3. We denote by $(\stackrel{*}{\preccurlyeq})$ the natural partial ordering of χ generated by componentwise dominance. That is, $\chi \stackrel{*}{\preccurlyeq} y$ if and only if $x_i \leq y_i$ for $i=1,2,\ldots,k$, with $\chi \stackrel{*}{\preccurlyeq} y$ if at least one of these inequalities is strict. An arbitrary total ordering $(\stackrel{*}{\preccurlyeq})$ on χ is $\frac{*}{\leqslant}$ on $\frac{*}{\leqslant}$ if $\chi \stackrel{*}{\preccurlyeq} y$ implies $\chi \stackrel{*}{\leqslant} y$.

<u>Proposition P5</u>. If the ordering on χ is consistent with the natural partial ordering and Assumption A5 is satisfied, then for each $x \in \chi$, $P_{\lambda}\{x \le x\}$ is non-increasing in each component of λ .

<u>Proof:</u> For yɛ l we introduce the representation y = $(y_1,y^{(2)})$ where $y^{(2)} = (y_2,y_3,\ldots,y_k)$. For real z, fixed xɛ l, and all yɛ l, let $I_x(z,y^{(2)})$ be the indicator function of the set $\{y^{(2)}:(z,y^{(2)}) \leq x\}$.

Then

$$P_{\lambda}\{X \leq x\} = E_{\lambda} I_{x}(X_{1}, X^{(2)})$$
 (2.6)

For any ye I, if $z' \leq z''$, then $(z',y^{(2)}) \not\preceq (z'',y^{(2)})$, by the consistency hypothesis, and $I_x(z',y^{(2)}) \geq I_x(z'',y^{(2)})$. Hence letting $G_x(z) = E_\lambda\{I_x(X_1,X^{(2)}) | X_1 = z\}$ we see that $G_x(z)$ is non-increasing in z. Thus, since the distribution of X_1 is stochastically increasing in λ_1 (A5), we conclude that E_λ $I_x(X_1,X^{(2)}) = E_\lambda$ $G_x(X_1)$ is non-increasing in λ_1 . The same argument applies to the other components of λ establishing the desired result. \square

Suppose that Λ is the non-negative orthant of $R^{(k)}$ and let S be the simplex $S = \{\lambda : \Sigma_{i=1}^k \lambda_i = 1\}$. If A4 and A5 are satisfied, then by P5 we observe that for any $\lambda \in S$ and real c, $P_{c\lambda}\{X \leq x\}$ is continuous and non-increasing in c. If the lower bound of $P_{c\lambda}\{X \leq x\}$ as $c \to \infty$ is less than α for all $x \in X$ and all $\lambda \in S$, then for each $x \in X$ and $\lambda \in S$ there exists a smallest number $b = b(x,\lambda)$ such that $P_{b(x,\lambda)\lambda}\{X \leq x\} = \alpha$. The confidence bound t(x) defined by D2 is then given by

$$t(x) = \sup_{\lambda \in S} \theta(b(x,\lambda)\lambda)$$
 (2.7)

Now $b(x,\lambda)$ is easily computed using root-finding techniques so that the computation of t(x) reduces to searching over § for the maximum of $\theta(b(x,\lambda)\lambda)$. Many routines are available for implementing such searches. For the situation described in Corollary Cl, the value of

b such that $P_{b\lambda}\{X \leq x\} = \alpha$ is unique and (2.7) is a computationally feasible version of (1.5).

All of the above results apply <u>mutatis</u> <u>mutandis</u> to the construction of <u>lower</u> confidence bounds and hence confidence intervals. Applications to the reliability of coherent systems involving the binomial or other distributions are possible. In particular, the above discussion applies directly to the binomial case under the transformation $\lambda_i = -\log(1-p_i)$, $i=1,2,\ldots,k$; $\theta(\lambda) = \sum_{i=1}^k \lambda_i = -\log \prod_{i=1}^k (1-p_i)$.

3. Systems With k = 2

As was noted in Section 1, if the system has effectively only one component (e.g., when all sample sizes are equal), then the problem reduces to the well-known case of finding an upper confidence bound for a single Poisson parameter. Then in the notation of Section 1, $\theta(\lambda) = \lambda$ and if t(x) is the confidence bound for λ , the lower confidence bound (1.6) for reliability R becomes

$$r(x) = 1 - t(x)/n$$
 , (3.1)

where n is the (common) sample size.

The two component case (k=2) presents all of the difficulties of the general case. The principal problem is to generate an ordering of the sample points $x=(x_1,x_2)$ which will lead to a "good" confidence bound t(x) computed using (1.5) or (2.7). Several different methods have been considered and implemented to varying extents

in the course of this investigation. These methods may be described briefly as follows:

- (i) The x's are ordered according to the values of the function $\tilde{t}(x) = a_1x_1 + a_2x_2 + z_{\alpha}\sqrt{a_1^2x_1 + a_2^2x_2}$, where z_{α} is the upper α -th quantile of the standard normal distribution.
- (ii) The x's are ordered according to the values of the approximate confidence bound obtained from the maximum likelihood ratio statistic (see Section 4).
- (iii) The ordering is generated sequentially by considering at each stage the group of points which are not yet ordered but could be adjoined without violating the natural partial ordering (see D3 of Section 2). The next point in the ordering is then chosen to be the "best" member of the candidate group, i.e., the point producing the smallest value of t(x) given by (1.5).
- (iv) The ordering is chosen so as to minimize $\mathbb{E}_{G}^{\{t(X)\}}$ for some suitable prior distribution G over the values of λ .
 - (v) The ordering is generated sequentially in the manner of (iii) above except that at each stage the candidate points for the next two steps are considered as pairs and the next point selected is the first step component which, together with the best available point for the second step, produces the smallest sum for the two values of t(x). Note that the point that appears to be "best" two steps ahead may not actually be chosen when that stage is reached.

It is clear that none of these methods is special to the case k=2. Method (i), based on the function $\tilde{t}(x)$, which is really a maximum likelihood estimate of an asymptotically valid confidence bound, was used to generate tables of bounds for the case k=2 in Johns (1975). Method (ii) does not improve substantially on Method (i) for moderate values of the X_i 's. Methods (i) and (ii) are asymptotically equivalent when at least one X_i becomes large (see Johns 1975) and indeed standard maximum likelihood results guarantee that both are asymptotically optimal. Method (iii) discussed in Johns (1977) was found to be a substantial improvement on (i) in the strong sense that when the Method (iii) ordering is used the values of t(x) are often smaller and only rarely slightly larger than the values for corresponding x's produced by Method (i).

The semi-Bayesian approach of Method (iv), which minimizes the expected length of the confidence interval, is the only one of the five that is directly motivated by optimality considerations. The bound resulting from any reasonable prior must at least be admissible. In pursuing this approach it was decided in the spirit of objectivity and in the hope of rapid convergence to asymptotic optimality to choose a prior distribution leading to an unconditional probability mass function for \mathbf{x}_1 and \mathbf{x}_2 constant for constant values of the maximum likelihood estimator $\mathbf{a}_1\mathbf{x}_1 + \mathbf{a}_2\mathbf{x}_2$ for $\theta(\lambda)$. In particular, the prior density for λ_1 and λ_2 was taken to be

$$g(\lambda_1, \lambda_2) = b_1 b_2 e^{-b_1 \lambda_1 - b_2 \lambda_2}, \lambda_1, \lambda_2 > 0$$
, (3.2)

where $b_1 = (1-e^{-\beta a_1})$, $b_2 = (1-e^{-\beta a_2})$, $\beta > 0$. This produces the unconditional probability mass function

$$p(x_1,x_2) = b_1b_2 e^{-\beta(a_1x_1 + a_2x_2)}, x_1,x_2 = 0,1,...,$$
 (3.3)

In the limiting case, as $\beta \to 0$, $p(x_1, x_2)$ becomes essentially uniform over any finite set of points (x_1, x_2) .

The actual minimization of $E_{C}\{t(X)\}$ may, in principle, be accomplished by finding the ordering which minimizes the contribution to $\mathbf{E}_{\mathbf{C}}$ among all orderings of length N where N may be arbitrarily large. This may be done systematically by starting at the origin (0,0) and constructing a tree whose nodes at each stage are characterized by a candidate point newly adjoined to the ordering and the corresponding value of $\Sigma p(x)t(x)$, where the sum is taken over all x's occurring in the path leading to the node, including the one just adjoined. At the N-th stage the node having the smallest accumulated sum identifies the optimal ordering of length N. This process may be facilitated by eliminating duplicate nodes and discontinuing branches when a node is reached whose value exceeds that known to be attainable in N stages. Nevertheless, because of the rapid increase in the number of nodes considered per stage, only the first forty or so points in the optimal orderings could be determined even using a very large computer facility.

In order to obtain examples of admissible orderings with which to compare the results of other methods, this computation was performed for two cases using an IBM 370/168. For both cases the

values α = .10 and a_1 = .30 were used. For the first case the probabilities given in (3.3) with β = 1 were used and the first 41 points of the optimal ordering were obtained. The forty-first stage of the computation produced 4557 nodes. For the second case the limiting situation as $\beta \to 0$ where the p(x)'s are all equal was used and the first 43 points of the optimal ordering were obtained. The number of nodes produced at the forty-third stage was 6478.

A comparison of these results with the corresponding results obtained using Methods (i), (iii), and (v) is indicated in Figure 1. The horizontal axis indexes the first 50 points in the ordering produced by Method (v), the two-step prospective sequential procedure. The values of t(x) for these indexed points for the five methods are indicated by the plotted symbols. Values of t(x) for methods other than (v) are shown only when they differ from those produced by that method. Based on this evidence it appears that Method (iv) and Method (v) differ very little and that both are better than the other methods. In fact, Method (iv) for the uniform case ($\beta = 0$) differs only trivially from Method (v). Since the use of Method (iv) for the construction of tables is now and probably always will be impractical, we are led to the choice for this purpose of the more tractible and virtually equivalent Method (v). Prospective sequential methods looking ahead more than two steps might be feasible, although the complexity of the computations increases rapidly with the number of steps. However, such procedures would be expected to produce only minute improvement over the two-step method.

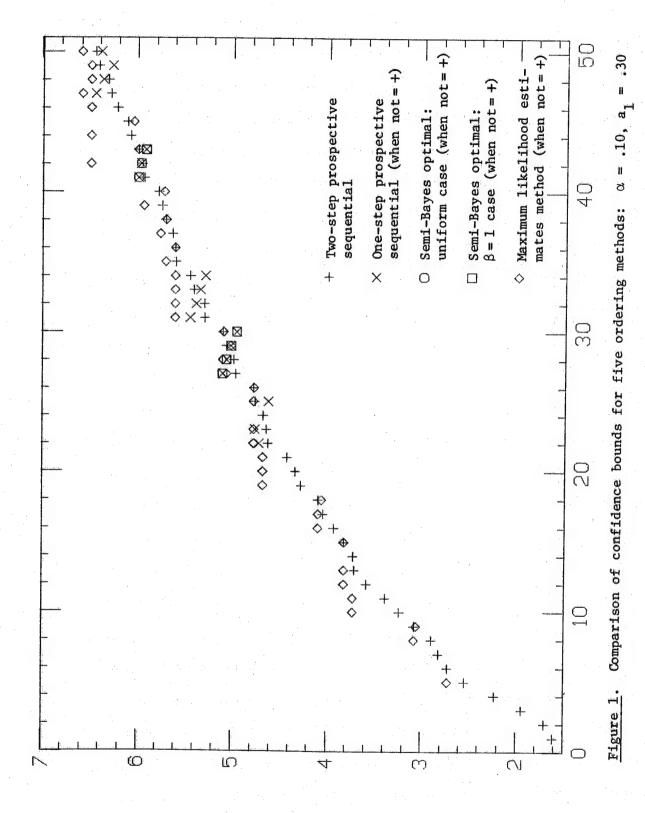


Table 1 gives values of the upper confidence bound t(x) computed using (2.7) with the sample orderings generated by the two-step prospective sequential Method (v). The values are given for the first 100 points in each ordering for $\alpha = .01$, .05, .10, for $a_1 = .05(.05).45$. It is assumed that the components of the system are indexed so that $a_1 < a_2$ which implies $a_1 < .50$. For convenience the values of (x_1,x_2) are listed systematically rather than in the order generated by the two-step procedure. This table provides a basis for computing accurate confidence bounds for the case k = 2using only simple interpolation. If values of a_1 greater than .45 but (necessarily) less than .50 are required, the bound for $a_1 = .5$ (corresponding to $n_1 = n_2$) may be used for interpolation. This bound is obtained by simply multiplying the ordinary upper confidence bound for a single Poisson parameter based on $x = x_1 + x_2$ failures by .50 (see, e.g., Pearson and Hartley 1958 for tables). The use of Table 1 is illustrated by the following two examples:

Example 1. Suppose that the two components of a series system are tested independently using sample sizes $n_1 = 300$ and $n_2 = 100$ respectively with the corresponding observed numbers of failures $X_1 = 3$ and $X_2 = 4$. Then c = (1/300 + 1/100) = 4/300 and $a_1 = 1/cn_1 = .25 = 1 - a_2$. If we wish to find a 95 percent confidence interval, we take $\alpha = .05$, and from Table 1 we find the confidence bound t(x) for $\theta(\lambda)$ to be 7.333. Hence by (1.6) the 95 percent lower confidence bound for system reliability R is 1 - (4/300)(7.333) = .902.

Table 1. The Confidence Bound t(x) for k=2 for the First 100 Points Generated by the Two-Stage Optimal Ordering Method for Each a_1 and lpha.

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Table 1. (Continued)

1   1   1   1   1   1   1   1   1   1	0-0m0-0m0-0m0-0m0-0m0-	5 × 2 × 2 × 2 × 2 × 2 × 2 × 2 × 2 × 2 ×		× ×	t(x1,x2)	×	X X	×	×	×S	t(x1,x2)		NX X	+(×1.×2)		NJ X	t(x1,x2
2.544         13         7.143         0         2.546         12         0         3.693         0         1.936         12         2.543         13         1.5643         14         0         1.957         11         2.543         15         2.543         16         0         2.549         16         0         2.549         16         0         2.549         17         17         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0	0-~mo-~mo-~mo-~mo-~mo-	914 924 929 929 934 934 934 934 934 934 934 934 934				1 1 1				1	1	;	1	1 2 2 1 2 1 2 1		1	
1         5.643         1         2.544         1         5.883         0         0         1.957         11         2         1.957         11         2         2.548         1         2         5.788         0         0         2.548         1         0         2.548         0         0         2.548         1         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0 <td> u m o u m o u m o u m o u m o</td> <td>644 644 658 658 658 7284 619 619</td> <td></td> <td>•</td> <td>1</td> <td></td> <td>, ,</td> <td>1 1 1 1 1 1</td>	u m o u m o u m o u m o u m o	644 644 658 658 658 7284 619 619		•	1											, ,	1 1 1 1 1 1
5.658   14   1.7291   0   1   4.032   12   1   5.403   0   1   3.306   11   3   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659   1   5.659	- u m o - u m o - u m o - u m o - u m o -	6443 9529 1553 9553 994 1619 1619		-	7,143	0	0		2	0	3.883	0	0	1.957	=	N	5.755
2         7.195         14         0         5.538         0         2         6.728         0         2         6.728         0         2         6.728         0         2         6.728         1         2         6.728         1         2         6.728         1         2         6.728         1         2         6.728         1         2         6.728         1         2         6.728         1         2         6.728         1         2         6.728         1         2         6.728         1         2         6.728         1         2         6.728         1         1         3         6.728         1         2         6.728         1         1         3         6.728         1         2         6.728         1         1         3         6.728         1         2         6.728         1         1         3         6.728         1         1         3         6.728         1         1         3         6.728         1         1         1         2         6.728         1         1         3         6.728         1         1         3         6.728         1         1         3         6.728         1<	N M O - U M O - U M O - U M O - U M O -	200 920 920 920 920 920 930 930 930 930 930 930 930 930 930 93		N,	8.659	0	· ·	•.	2	_	5.403	0	-	3.306	=	M	6.921
2.558         14         2.564         1         2.561         13         2.688         1         0         3.679         12         1         0.777         1         2.561         13         2.688         1         0         1.972         13         2.688         1         0         1.972         13         2         0.689         1         0         1.972         13         0         0         0         0         1.972         13         0         0         1.972         13         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         <	mo- u m o - u m o - u m o - u m o -	555 555 555 555 555 555 657 657	4 4 10	0	5.538	0	N		2	N	•	0	'n	4.524	2	0	3.293
5.229         14         2         6.009         0         4.7780         13         5.660         0         4.5799         12         5.694         14         0         1.972         13         2         6.817         1         1.972         13         2         6.817         1         2.4530         1         4.607         14         0         4.171         1         1         3.321         13         1         5.604         14         0         4.171         1         1         4.530         1         2         6.810         1         2         6.810         1         2         6.810         1         2         6.810         1         2         6.810         1         2         6.810         1         4.610         1         2         6.810         1         4.610         1         2         6.810         1         4.610         1         2         6.810         1         4.610         1         4.710         1         1         4.610         1         4.710         1         4.710         1         4.710         1         4.710         1         4.710         1         4.710         1         4.710         1         4.710	o-amo-amo-amo-amo-	929 658 160 723 723 619 816	4 7	-	•.	0	M)	6.591	<u></u>	0	•	0	m	5.679	7	-	4.679
2         7.568         15         6.568         1         0.561         1         0.561         1         0.561         1         0.561         1         0.561         1         0.561         1         0.561         1         0.561         1         0.561         1         0.561         1         0.561         1         0.561         1         0.561         1         0.561         1         0.561         1         0.561         1         0.561         1         0.561         1         0.561         1         0.561         1         0.561         1         0.561         1         0.561         1         0.561         1         0.561         1         0.561         1         0.561         1         0.561         1         0.561         1         0.561         1         0.561         1         0.561         1         0.561         1         0.561         1         0.561         1         0.561         1         0.561         1         0.561         1         0.561         1         0.561         1         0.561         1         0.561         1         0.561         1         0.561         1         0.561         0.561         1         0.561<	- a m a - a m a - a m a - a m a -	658 160 723 723 619 619 816	2	N	•	0	J	7.780	M	-	•	0	4	6.795	12	٥ı	5.905
2         7.160         15         1         4.047         14         0         4.171         1         1.3321         13         2.66         14         0         4.171         1         1.3571         1         1.404         1         0.606         14         0         4.171         1         1         3.549         1         0.606         14         2         7.034         1         0.613         1         0.613         1         0.613         1         0.613         1         0.613         1         0.613         1         0.613         1         0.613         1         0.613         1         0.613         1         0.613         1         0.613         1         0.613         1         0.613         1         0.613         1         0.613         1         0.613         1         0.613         1         0.613         1         0.613         1         0.613         1         0.613         1         0.613         1         0.613         1         0.613         1         0.613         1         0.613         1         0.613         1         0.613         1         0.613         1         0.613         1         0.613         1	uno-uno-uno-uno-	160 723 723 619 816	14	0	•	-	0	2.561	10	~	•	-	0		13	0	3.438
3. 96553         15 2 6.394         1 2 5.377         14 1 5.717         1 2 6.530         14 2 5.723         1 2 6.530         14 2 5.723         1 3 5.94         14 1 5.717         1 2 6.530         14 2 5.723         1 3 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97         1 4 2 5.97	m a =	553 222 619 816	T.	-	•	-	•	4.047	4	0	4.171	-		3.321	10	_	4.836
2.725         16         0         5.831         1         3         6.666         15         0         7.1034         1         5         6.647         16         0         5.646         15         1         7.1034         1         5         6.647         16         0         6.647         16         16         16         0         16         0         6.647         16         16         0         0         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16 <td>0-umo-umo-umo-umo-</td> <td>994 723 225 619 816</td> <td>T.</td> <td>Ņ,</td> <td>8.964</td> <td>_</td> <td>CJ.</td> <td>5.367</td> <td>4</td> <td>_</td> <td>5.717</td> <td>-</td> <td>ณ</td> <td>•</td> <td>m</td> <td>٨</td> <td>6.055</td>	0-umo-umo-umo-umo-	994 723 225 619 816	T.	Ņ,	8.964	_	CJ.	5.367	4	_	5.717	-	ณ	•	m	٨	6.055
2         7.272         16.773         16.773         16.773         16.773         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774         17.774	- amo- amo- amo-	723 619 087 816	16	0	5.831	_	m		5	N	7.034	-	ı M		4		F 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
2.725         16         29.117         2         0.626         15         16.679         2         0.679         17         17.747         2         0.671         16.072         2         0.671         16.072         2         0.671         16.072         2         0.671         16.072         2         0.671         16.072         2         0.671         16.072         2         0.671         16.072         2         0.671         16.072         2         0.671         16.072         2         0.671         16.072         2         0.671         16.072         2         0.671         16.072         2         0.671         16.072         2         0.671         16.072         2         0.671         16.072         2         0.671         16.072         2         0.671         16.072         2         0.672         17.072         2         0.671         16.072         2         0.671         0.672         17.072         2         0.672         17.072         2         0.672         17.072         2         0.672         17.072         2         0.672         17.072         2         0.672         17.072         2         0.672         17.072         2         0.672         17.	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	225 619 067 816	16	-	7.594	-	4		10	0	4.319	-	4	. 40	9	<b>-</b>	100
9.619         17         0         9979         2         14,113         15         2,7187         2         13,397         15         0,619         17         0         4,087         17         0         4,087         17         0         4,087         18         0         18         0         18         0         18         0         18         0         18         0         18         0         18         0         18         0         18         0         18         0         18         0         18         0         18         0         18         0         18         0         18         0         18         0         18         0         18         0         18         0         18         0         18         0         18         0         18         0         0         18         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0	m o - a m o - a m o -	619 087 816	16	ณ	9.117	N	0	2.626	T.	-	5.874	۰ ۵	-	2 047	4	٠.	4 204
9.4087         17         7.747         2         2.5432         16         0.4668         2         2.6669         15         0.4669         17         0.4669         17         0.4669         17         0.4669         18         0.4669         18         0.4669         18         0.4669         18         0.4669         18         0.4669         18         0.4669         18         0.4669         18         0.4669         18         0.4669         18         0.4669         18         0.4669         18         0.4669         19         0.6669         19         0.6669         4         0.7669         18         0.6669         19         0.6669         4         0.7669         18         0.6669         19         0.6669         4         0.7669         18         0.6669         19         0.6669         4         0.7669         18         0.6669         4         0.7669         19         0.6669         4         0.7669         19         0.6669         4         0.7669         19         0.6669         4         0.7669         19         0.6669         4         0.7669         19         0.7669         19         0.7669         19         0.7669         19         0.7669	0- a m 0 - a m 0 - a m 0 -	916	17	0	5.979	· 💊	-	4.113	ī	٠ ٨	7.187		۰-	7.387	, u		777
5.86	- umo - umo - umo -	816	17	-	7.747	. ~	N	5.432	9	0	4.468		٠ ۸	•	<u> </u>	> -	, H
2         7.379         18         0         6.128         3         0         2.779         16         2         7.346         1         6.075         16         1         6.075         16         1         6.075         16         1         6.075         1         6.075         1         6.076         1         6.076         1         6.076         1         6.076         1         6.076         1         6.076         1         6.076         1         6.076         1         6.076         1         6.076         1         6.076         1         6.076         1         6.076         1         6.076         1         6.076         1         6.076         1         6.076         1         6.076         1         6.076         1         6.076         1         6.076         1         6.076         1         6.076         1         6.076         1         6.076         1         6.076         1         6.076         1         6.076         1         6.076         1         6.076         1         6.076         1         6.076         1         6.076         1         6.076         1         6.076         1         6.076         1	umo-umo-umo-	100	17	N	9.272	N	М	6.671	9	-	6.032	۰ ۵	ı		, F	٠ ،	44,0
3 6.772         18         1 7.001         3 1 4.206         17         0 4.617         3 0 2.129         16         18         1 7.001         3 1 4.206         17         16.190         3 1 2.129         16         18         1 5.924         19         2 1.000         18         2 4.768         3 2 4.060         19         18         2 4.060         17         1         4.190         3 2 4.060         19         18         2 4.768         3 2 4.060         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19<	m o - u m o - u m o -	319	18	0	6.128	M	0	2.719	4	N	7.341	1 64	4	6.875	9		
2         7.424         18         2         9.487         3         5.525         17         2         7.496         3         1         3.469         19         2         6.626         17         2         7.496         3         1         3.469         19         2         6.626         19         2         6.626         19         2         6.626         19         2         6.647         3         3         6.697         17         2         7.496         3         3         6.697         17         2         7.496         3         2         6.697         19         0         4.748         3         2         6.697         19         0         6.648         3         5.697         19         0         6.648         3         6.697         19         0         6.648         3         6.697         19         0         6.648         3         6.648         3         6.648         3         6.648         3         6.648         19         0         6.648         3         6.648         3         6.648         19         0         6.648         3         6.648         3         6.648         3         6.648         3	0-umo-umo-	712	0	-	7.901	m	-	4.206	17	0	4.617	<b>341</b>	0	2,129	9	-	5. 307
1         5.924         19         0.6278         3         6.765         17         2         7.496         3         2         4.696         17         19         2         4.696         17         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19         19	- 0 m 0 - 0 m 0 -	194	8	٥ı		M)	N	5.525	17	_	6.190	M	_	3.480	9	٠.	6.522
2.7427         19         1.6056         4         0.2226         18         0.4768         3         5.654         17         17         17         18         1.6346         3         6.975         19         0.4768         3         6.975         19         0.4799         4         1.5589         19         0.4799         4         1.5589         19         0.4799         4         1.5589         19         0.4799         4         1.5589         19         0.4799         4         1.5589         19         0.4799         4         1.5589         18         1.6589         6         0.5764         19         0.4799         4         1.5589         19         0.4799         4         1.5589         19         0.4799         4         1.5589         19         0.4799         4         1.5589         19         0.4799         4         1.5589         19         0.4799         4         1.5589         19         0.4799         4         1.5589         19         0.4799         4         1.5589         19         0.4799         4         1.5589         19         0.4799         4         1.5589         19         0.4799         19         0.4799         4         1.5589 </td <td><b>umo-</b>umo-</td> <td>924</td> <td>6</td> <td>0</td> <td></td> <td>m</td> <td>m</td> <td>6.765</td> <td>17</td> <td>N</td> <td>7.496</td> <td>PO</td> <td>N</td> <td></td> <td>7</td> <td></td> <td>4.035</td>	<b>umo-</b> umo-	924	6	0		m	m	6.765	17	N	7.496	PO	N		7		4.035
3         8.821         19         2         9.583         4         1         4.314         16         1         6.346         3         6.970         17         2         19         2         9.583         4         1         4.314         16         1         6.346         3         6.635         19         1         6.516         4         2         6.975         19         1         6.516         4         2         9.394         19         1         6.516         4         2         9.394         19         1         6.516         4         2         9.394         19         1         6.516         4         2         9.394         19         1         6.516         4         2         9.394         19         1         6.516         5         2.944         19         1         6.616         4         2         9.394         19         1         6.516         5         2.943         19         1         6.516         6         19         1         6.516         6         19         1         6.516         6         19         1         6.516         6         9.916         19         1         6.516         6	m o - a m o -	427	6	_	8.056	4	0	2.826	9	0	4.768	P P*1	i M				444
6.531         20         6.429         4         2         5.635         18         2         7.651         4         1         2.537         18         1         6.506         4         1         3.589         18         1         6.506         4         1         3.589         18         1         6.506         4         1         3.589         18         1         6.506         4         1         3.589         18         1         6.506         4         1         3.589         18         1         6.506         4         1         6.506         4         1         6.506         4         1         6.506         4         1         6.506         4         1         6.506         4         1         6.506         4         1         6.506         6         1         6.606         1         6.606         1         6.606         1         6.606         1         6.606         1         6.606         1         6.606         1         6.606         1         6.606         1         6.606         1         6.606         1         6.606         1         6.606         1         6.606         1         6.606         1         6	0 - 0 M 0 -	821	6	a	9.583	4	-	4.314	9	_	6.348	i, pri	4	6.970		- •	4.4.4
1         6.042         20         1         8.212         4         3         6.045         19         0         4.919         4         1         6.566         4         2         6.066         1         6.566         4         2         6.066         1         6.566         4         2         6.066         1         6.566         4         2         6.066         1         6.566         5         1         6.566         4         2         6.066         1         6.566         5         1         6.566         5         1         6.566         5         1         6.566         5         1         6.566         5         1         6.565         5         1         6.565         5         1         6.565         5         1         6.565         5         1         6.565         5         1         6.565         5         1         6.565         5         1         6.665         5         1         6.665         5         1         6.665         5         1         6.665         5         1         6.665         5         1         6.665         5         1         6.665         5         1         6.665	- a m o -	311	50	0		*	N	5.635	8	~	7.651	<b>.</b>		2.237	<u> </u>	ı C	781 4
2         7.546         21         6.588         5         0         2.943         19         1         6.506         4         2         4.606         4         2         4.606         4         2         4.606         4         2         4.606         19         2         7.007         4         3         6.665         5         1         6.665         5         1         6.665         5         1         6.665         5         1         6.665         5         1         6.665         5         1         9         2         7.607         2         1         6.665         5         1         6.665         5         1         6.665         5         1         6.665         5         1         9         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1<	0 m o -	042	20	-	8.212	4	m	6.875	6-	0	4.919	4	_	3,589	8	-	5.623
9.944         21         18.361         5         1 4,433         19         2 7,607         4         3 5,964         19         2 7,607         4         3 5,964         19         2 7,607         5         0 5,255         5         0 5,075         2 0         0 5,075         5         0 5,075         5         0 5,075         5         0 5,075         5         0 5,075         5         0 5,075         5         0 5,075         5         0 5,075         5         0 6,065         5         1 6,085         5         1 6,085         5         1 6,085         5         1 6,085         5         0 6,085         6         1 6,085         5         1 6,085         5         1 6,085         5         1 6,085         5         1 6,085         5         1 6,085         5         1 6,085         6         1 6,085         5         1 6,085         6         1 6,085         6         1 6,085         6         1 8,085         6         1 6,085         6         1 6,085         6         1 6,085         5         1 6,085         6         1 6,085         5         1 6,085         5         1 6,085         5         1 6,085         5         1 6,085         5         1 6,085         5	m 0 -	546	2	0	6.588	Ŋ	0	2,943	6	_	6.506	4	c)	4.808	8	N	6.830
4,435         22         0 6.744         5         2 5.754         20         0 5.072         5         19         19         19         19         19         2         2.754         20         0 5.055         5         19         2.376         19         19         2         2.765         20         1         6.655         5         19         2         4.926         5         1         6.655         5         19         2         4.926         6         1         4.559         21         1         6.655         5         19         2         4.926         2         4.926         5         2         4.926         5         1         4.659         6         1         4.559         21         1         6.655         5         1         4.650         2.376         6         2.478         21         1         4.650         2.376         6         2.478         21         1         4.650         2.376         6         2.478         21         1         4.650         2.376         6         2.478         2.1         1         4.650         2.378         6         2.478         2.1         1         4.650         2.2         1         4.	o -	156	2	-	8.381	'n	-		6	N.	7.807	4	m	5.964	6	0	4.339
2         7.672         22         1         8.538         5         6.995         20         1         6.665         5         1         3.708         19         2         0.645         2         1         0.645         5         1         0.645         5         1         0.645         5         1         0.645         5         1         0.645         5         1         0.645         5         1         0.645         5         1         0.645         5         1         0.645         5         1         0.645         5         1         0.645         5         1         0.645         5         1         0.645         5         1         0.645         5         1         0.645         5         1         0.645         5         1         0.645         5         1         0.645         5         1         0.645         5         1         0.645         5         1         0.645         5         1         0.645         5         1         0.645         5         1         0.645         5         1         0.645         5         1         0.645         5         1         0.645         5         1         0.646 </td <td>_</td> <td>435</td> <td>22</td> <td>0</td> <td></td> <td>Ŋ</td> <td>N</td> <td>•</td> <td>20</td> <td>0</td> <td>5.072</td> <td>Ŋ</td> <td>0</td> <td>2.354</td> <td>6</td> <td>_</td> <td>5.780</td>	_	435	22	0		Ŋ	N	•	20	0	5.072	Ŋ	0	2.354	6	_	5.780
2         7.672         23         0.6896         6         0         3.067         21         0         6.896         6         1.6599         21         1.6284         5         2.478         21         1.6284         5         3.607         23         1.6185         20         1.6184         5         3.6085         20         1.6184         5         3.6184         21         1.6184         5         3.6185         20         1.6184         5         3.6185         20         1.6184         5         3.6186         21         1.6184         5         3.6186         21         1.6185         22         1.6184         5         3.6186         22         1.6184         5         3.6186         22         1.6184         5         3.6186         22         1.6186         22         1.6186         22         1.6186         22         1.6186         22         1.6186         22         1.6186         22         1.6186         22         1.6186         22         1.6186         22         1.6186         22         1.6186         22         1.6186         22         1.6186         22         1.6186         22         1.6186         22         1.6186         22         1.61	• (	167	22	-		in	<b>P</b> 1	•	20	_	6.665	ιń	••	3.708	6	N	
9.067         23         1 8.696         6         1 4.559         21         1 6.824         5         3 6.065         20         1 6.896         6         1 6.896         6         1 6.896         6         1 6.297         5         3.76         2         6         2 5.376         6         2 6.276         2         1 6.297         2         1 6.297         2         1 6.297         2         1 6.297         2         1 6.297         2         1 6.297         2         1 6.297         2         1 6.297         2         2         1 6.297         2         2.408         2         2.408         2         2.408         2         2.408         2         2.606         2         2.146         2         3         6.216         2         1 6.476         2         1 6.490         2         3         6.216         2         2.606         2         2.606         2         3         6.216         2         3         6.216         2         3         6.216         2         3         6.216         2         3         6.216         2         3         6.216         3         6.216         3         6.216         3         6.216         3         6.216         3<	NI I	672	23	0		•	0	3.067	21	0	5.225	īŪ	N.	4.928	20	0	
2         7.050         6         2         5.881         22         0         5.378         6         0         2.478         21         0         4.784         21         0         5.532         6         1         3.634         21         1         0         0         1         0         0         1         0         0         1         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0	n (	190	23	- (	•	9	-	4.559	21	-	6.824	Ŋ	m	6.085	50	_	5.938
2.797         24         1 8.655         6         3 7.123         22         1 6.982         6         1 3.834         21         1 6.982         6         1 3.834         21         1 6.982         6         1 3.834         21         1 6.982         6         1 3.834         21         1 6.982         6         1 7.141         6         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.015         2 6.016         2 6.016         2 6.016         2 6.016         <	> •	204	<b>3</b> V	ь.	7.050	•	NI I	5.881	25	0	5.378	•	0	2.478	2	0	•
4.696         25         0         5.532         6         2         5.056         22         0         4.696         23         0         5.532         6         2         5.056         22         1         6.435         2         6.216         22         1         6.435         2         6.216         22         1         6.435         2         6.216         22         1         6.435         2         6.216         22         1         6.435         2         6.216         22         1         6.216         22         1         6.216         2         1         6.216         2         1         6.216         2         1         6.216         2         1         6.216         2         1         6.216         2         1         6.216         2         1         6.216         2         1         6.216         2         1         6.216         2         1         6.216         2         1         6.216         2         1         6.217         7         2         6.16         2         1         6.216         2         1         6.216         2         1         6.216         2         1         6.217         7	- •	147	† L	- 6	6.655	o f	n (	7.123	22	-	6.982	•	_	3.834	2	_	960.9
6.4596         2.3         7.1441         6         3         6.216         2.2         1         6.456         7         7.014         7         1         4.696         2.3         7.1441         6         3         6.216         2.2         1         6.456         7         7         1         2.606         2.3         0         4.696         2.3         0         4.696         2.3         0         4.696         2.3         0         4.696         2.3         0         4.696         2.3         0         4.696         2.3         0         4.696         2.3         0         4.696         2.3         0         4.696         2.5         0         5.998         8         0         2.739         2.5         0         4.696         2.5         0         5.998         8         0         2.739         2.5         0         4.347         2.4         1.6         5.998         8         0         2.739         2.5         0         5.347         2.6         1.6         5.998         8         0         2.739         2.5         1.6         5.739         2.5         1.6         5.739         2.5         1.6         5.739         2.5         1.6 <td>J P</td> <td>000</td> <td>Ų C</td> <td></td> <td>007.</td> <td><u> </u></td> <td>۰ د</td> <td>3.196</td> <td>23</td> <td>0</td> <td>5.532</td> <td>9</td> <td>N.</td> <td>5.056</td> <td>22</td> <td>0</td> <td>4.799</td>	J P	000	Ų C		007.	<u> </u>	۰ د	3.196	23	0	5.532	9	N.	5.056	22	0	4.799
6.435         26         7         2         6.013         24         0         5.687         7         0         2.606         23         0         4.935         2         0         5.687         7         0         2.606         23         0         4.635         2         0         5.687         7         1         3.966         23         0         4.685         2         0         5.984         7         1         3.966         23         1         0         2.606         23         1         0         2.606         23         1         0         2.606         23         1         0         2.606         23         1         0         2.606         23         1         0         2.606         23         1         0         2.606         23         1         0         2.606         23         1         0         2.606         23         1         0         2.606         23         1         0         0         2.606         23         1         0         2.606         23         1         0         2.606         23         1         0         2.606         23         1         0         2.607         2	h c	7 7 7	n d	- (	7.014	<b>~</b> 1	- (	4.690	53		7.141	•	m	6.216	25	-	6.254
2         7.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.339         22.9         27.339         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939         27.939		040	0 70	٠.	7.302	<b>-</b> 1	N 1	6.013	52	0	5.687	_	0	2.606	53	0	
4.835         27         5.843         7         2.5189         24         0         5.528         25         0         5.843         7         2.5189         24         0         5.843         7         2.5189         24         0         5.845         7         3         6.347         24         1         6.459         8         1         4.825         25         1         7.459         7         3         6.347         24         1         7.617         8         1         4.347         24         1         7.617         8         1         6.347         25         1         6.347         25         1         6.347         25         1         6.347         25         1         6.347         25         1         6.347         25         1         6.154         8         6.154         25         1         6.457         2         6.154         25         1         6.455         2         6.154         2         6.154         2         6.154         6         6.154         8         6.455         1         6.154         8         6.465         2         6.154         8         6.465         1         6.154         8         6.465 <td>- 0</td> <td>020</td> <td>9.0</td> <td>- 6</td> <td>7</td> <td>~ &lt;</td> <td>n (</td> <td>1.250</td> <td>t 1</td> <td></td> <td>7.300</td> <td>1</td> <td>_</td> <td>3.966</td> <td>23</td> <td>-</td> <td></td>	- 0	020	9.0	- 6	7	~ <	n (	1.250	t 1		7.300	1	_	3.966	23	-	
4.831         28         7.559         7         3         6.347         24         1         7.459         7         3         6.347         24         1         7.459         7         3         6.347         24         1         7.459         7         3         6.347         24         1         7.459         7         3         6.347         24         1         6.150         26         0         5.998         8         0         2.739         25         0         5.998         8         0         2.739         25         0         5.998         8         0         2.739         25         0         5.998         8         0         2.739         25         0         5.998         8         0         2.739         25         0         5.998         8         0         2.727         26         0         5.998         8         0         2.727         26         0         5.998         8         0         2.876         26         0         5.998         6         6.485         26         0         5.998         6         6.485         26         0         5.876         26         0         5.846         27         0	u: 14	724	10	۰ د	7.0.7	<b>o</b> 0	ъ.	5.328	S I	٥,	5.843	~	QI I	5.189	54	0	5,109
6.569         26         0.739         26         0.739         25         0.739         25         0.5998         8         0.2739         25         0.5998         8         0.2739         25         0.5998         8         0.2739         25         0.5998         8         0.2739         25         0.5998         8         0.2739         25         0.5998         0.5908         8         0.5998         8         0.5998         0.5908         0.5908         0.5908         0.5908         0.5908         0.5908         0.5908         0.5908         0.5908         0.5908         0.5908         0.5908         0.5908         0.5908         0.5908         0.5908         0.5908         0.5908         0.5909         0.5909         0.5908         0.5909         0.5909         0.5909         0.5909         0.5909         0.5909         0.5909         0.5909         0.5909         0.5909         0.5909         0.5909         0.5909         0.5909         0.5909         0.5909         0.5909         0.5909         0.5909         0.5909         0.5909         0.5909         0.5909         0.5909         0.5909         0.5909         0.5909         0.5909         0.5909         0.5909         0.5909         0.5909         0.5909 <td></td> <td>000</td> <td>3 6</td> <td>- 6</td> <td>7.000</td> <td>0 (</td> <td>~ (</td> <td>9. G. Z.</td> <td>3</td> <td>_</td> <td>7.459</td> <td>1</td> <td>m</td> <td>6.347</td> <td>54</td> <td>_</td> <td>6.569</td>		000	3 6	- 6	7.000	0 (	~ (	9. G. Z.	3	_	7.459	1	m	6.347	54	_	6.569
2.507     2.9     7.472     9     7.574     20     1     7.617     8     1     4.102     25     1       3.6463     2.9     3.463     2.7     0.154     8     2     5.327     26     0       4.969     31     0.148     9     2     6.290     28     0     6.467     9     1     4.241     28       1     6.709     32     0     8.465     10     0     2.874     2.7       2     8.223     33     0     8.465     10     0     2.874     2.7       2     8.223     33     0     8.465     10     0     2.647     9     1     4.241     2.8       2     8.223     33     0     8.624     10     0     3.617     9     2     5.469     2.9       2     8.364     36     6.781     30     6.781     9     3.627     30     0       3     8.364     36     0     6.781     33     0     7.096     10     1     4.384     32     0       4     6.997     37     37     37     37     34     0     3.615     35     0       5 <td></td> <td>100</td> <td>0 0</td> <td>٠.</td> <td>6/0/</td> <td>0 0</td> <td>N I</td> <td>6.150</td> <td>8</td> <td>٥.</td> <td>5.998</td> <td>ω 1</td> <td>0</td> <td>2.739</td> <td>25</td> <td>0</td> <td>5.264</td>		100	0 0	٠.	6/0/	0 0	N I	6.150	8	٥.	5.998	ω 1	0	2.739	25	0	5.264
3     9.476     27     0     6.154     8     2     5.327     26     0       3     9.476     30     7.991     9     1     4.964     27     0     6.467     9     1     6.485     26     1       4     4.964     31     3     7.536     29     0     6.467     9     1     6.485     26     1       5     6.709     32     0     8.629     29     0     6.467     9     1     4.241     28     0       6     8.223     33     0     8.465     10     0     3.601     30     6.624     9     2     5.469     29       0     5.109     34     0     3.601     30     6.624     9     3     6.627     30       1     6.852     35     0     6.624     9     3     6.627     30       1     6.852     35     0     6.781     9     3     6.627     30       1     6.854     35     0     6.938     10     0     3.012     31     0       2     8.364     36     0     9.460     11     0     3.764     34     0     7.611 <td>- 0</td> <td>000</td> <td>9 6</td> <td>- 0</td> <td>7.446</td> <td>0 0</td> <td><b>1</b> (</td> <td>466.7</td> <td>9 !</td> <td>-</td> <td>7.617</td> <td>Φ.</td> <td>-</td> <td>4.102</td> <td>52</td> <td>_</td> <td>6.727</td>	- 0	000	9 6	- 0	7.446	0 0	<b>1</b> (	466.7	9 !	-	7.617	Φ.	-	4.102	52	_	6.727
6.709       30       6.745       7       1.704       2       6.290       28       0       6.310       9       0       2.874       27       0         1       6.709       32       0       8.307       9       3       7.536       29       0       6.467       9       1       4.241       28       0         2       8.223       33       0       8.465       10       0       3.601       30       6.624       9       2       5.469       29         0       5.109       34       0       8.624       10       1       5.105       31       0       6.624       9       2       5.469       29       0         1       6.852       35       0       6.624       9       3       6.627       30       0         1       6.852       35       0       6.938       10       3       6.273       31       0         2       8.364       36       0       6.938       10       0       3.012       31       0         2       8.364       36       0       6.938       10       1       4.384       32       0	, M	476	7 6	,	7.007	> c	<b>-</b>	5.465	/2	٥.	6.154	<b>60</b>	<b>N</b> 1	5.327	56	0	5.419
6.709     32     0.540     9.510     9     0.5874     27     0       2.8223     33     0.8465     10     0.3601     30     0.6467     9     2.8469     29     0       2.8223     33     0.8465     10     0.3601     30     0.6624     9     2.469     29     0       5.109     34     0.8624     10     1.5.105     31     0     6.781     9     3.6627     30       1     6.852     35     0.6781     9     3.6627     30       2     8.364     36     0.6781     33     0     3.012     31     0       2     8.364     36     0.6938     10     1.4584     32     0       3     6.938     10     1.4584     32     0       4     6.997     11     1.5.249     35     0     7.253     10     2.5610     33     0       2     8.510     36     0.7620     11     1.5.249     35     0     7.411     10     3.152     35     0       2     8.510     36     0.7620     11     2.569     11     0.7620     35     0     7.569     11     0.7620     35 </td <td>,</td> <td>0 70</td> <td>9 6</td> <td>&gt; 0</td> <td>1.47</td> <td>&gt; 0</td> <td>- 0</td> <td>4.704</td> <td>/2</td> <td>- (</td> <td>7.776</td> <td><b>co</b> (</td> <td>M. (</td> <td>6.485</td> <td>56</td> <td>_</td> <td>6.885</td>	,	0 70	9 6	> 0	1.47	> 0	- 0	4.704	/2	- (	7.776	<b>co</b> (	M. (	6.485	56	_	6.885
2 8.223 35 0 8.465 10 0 3.601 30 0 6.624 9 2 5.469 29 0 5.109 34 0 8.625 10 0 3.601 30 0 6.624 9 2 5.469 29 0 5.109 34 0 8.783 10 2 6.433 32 0 6.938 10 0 3.012 31 0 5.251 37 0 9.101 11 0 3.741 34 0 7.253 10 2 5.610 33 0 5.251 37 0 9.260 11 1 5.249 35 0 7.411 10 3 6.772 34 0 5.394 40 0 9.560 11 2 6.579 36 0 7.569 11 0 3.152 35 0 5.394		200	5.6	<b>.</b>	0 0	۰ ۵	y r	10.570	0 0	<b>5</b> (	6.310	<b>(</b>	0	2.874	27	0	5.575
5.109 34 0 8.624 10 1 5.105 31 0 6.781 9 3 6.627 30 0 5.109 34 0 8.783 10 2 6.433 32 0 6.938 10 0 3.012 31 0 5.251 37 0 9.101 11 0 3.741 34 0 7.253 10 2 5.610 33 0 5.251 37 0 9.260 11 1 5.249 35 0 7.411 10 3 6.772 34 0 5.394 40 0 9.560 11 1 2 6.579 36 0 7.569 11 0 3.152 35 0	. ~	200	1 14	) c	8 44E	• •	٦ د	0001	, ,	<b>.</b>	/01.0		- (	14.241	58	0	5.731
1 6.852 35 0 6.783 10 2 6.433 32 0 6.938 10 0 3.012 31 0 2.564 36 0 8.942 10 3 7.681 33 0 7.096 10 1 4.384 32 0 5.251 37 0 9.101 11 0 3.741 34 0 7.253 10 2 5.610 33 0 1 6.997 38 0 9.260 11 1 5.249 35 0 7.411 10 3 6.772 34 0 5.394 40 0 9.580 11 2 6.579 36 0 7.569 11 0 3.152 35 0	0	109	45		40.4	2 =	<b>.</b>	100.11	9 6	<b>,</b>	470.0	> (	N.	5.469	62		5.887
2 8.364 36 0 8.942 10 3 7.681 33 0 7.096 10 1 4.384 32 0 5.251 37 0 9.101 11 5.249 35 0 7.253 10 2 5.610 33 0 1 6.997 38 0 9.260 11 1 5.249 35 0 7.411 10 3 6.772 34 0 5.394 40 0 9.580 11 3 7.829 35 0 7.569 11 0 3.152 35 0 5.394	-	852	3		8 784	) C	- 0	22.03	~ £	<b>.</b>	•	<b>.</b>	n (	129.0	30		9.044
0 5.251 37 0 9.101 11 0 3.741 34 0 7.253 10 2 5.610 33 0 6. 1 6.997 38 0 9.260 11 1 5.249 35 0 7.411 10 3 6.772 34 0 6. 2 8.510 39 0 9.420 11 2 6.579 36 0 7.569 11 0 3.152 35 0 6. 0 5.394 40 0 9.580 11 3 7.829 37 0 7.529 11 0 3.152 35 0 6.	~	364	36	. 0	8,942	2 0	1 P	7 6.83	4 K	, > c	•	2 :	٠.	5.012	5	<b>5</b> 4	6.201
1 6.997 38 0 9.260 11 1 5.249 35 0 7.411 10 3 6.772 34 0 6. 8.510 39 0 9.420 11 2 6.579 36 0 7.569 11 0 3.152 35 0 6. 0 5.394 40 0 9.580 11 3 7.829 37 0 7.229 11 0 3.152 35 0 6.	0	251	7	0	9.101	=	). c	177. 1	) v	, e		> c	- 0	+	2		•.
2 8.510 39 0 9.420 11 2 6.579 36 0 7.569 11 0 3.152 35 0 6. 0 5.394 40 0 9.580 11 3 7.829 37 0 7.22 11 0 3.152 35 0 6.	-	266	38	0	9.260	=		5.249	<u>ا</u>		7 411	2 5	J. P	0.0.6	2 4	· > c	10.0
0 5.394 40 0 9.580 11 3 7.829 37 7 7.927 11 0 3.152 35 0 6.	es es	510	39	0	9.420	=	٠.	4 570	3 %	· •	7 540	2 •	n c	2//0	<b>†</b>	<b>5</b> (	6.67
	0	394	40		082	: :	1 14	7 820	D F	> <	1.00	= :	٠.	3.152	3		6.828

Table 1. (Continued)

×	x2	.   .		1												,	
	- 1	t(x1,x2)	×	×	t(x1,x2)	×	NX	t(x1,x2)	×	×	t(x1,x2)	×	×	t(x1,x2)	×	X .	t(x1,x2)
									,								
<b>.</b>	ь,	3.684	2 :	N I	8.377	0	۰ م	•	٥ ;	m (	7.664	0	0	1.842	o :	-	4.572
		5.311	0:	M. (	9.716	0 (	- 1	3.795	2	0	3.982	: 0			0	a :	5.716
		6.725	= :	ь,	5.469	ъ.	7	•	0	-	5.440	0	N.	•	0	m	•
		8.036	= :	- •	7.153	<b>D</b> (	ŋ,	6.203	2	N	6.697	0	m.	•	2	0	•
		7.284	= :	N 1	8.590	0	<b>J</b>	•	0	m	7.873	0	+	6.395	0	_	•
·.		3.714	=	m		0	Ŋ,	•	=	0	4.187	0	Ŋ	7.420	2	N	•
_		5.341	12	0	5.676	<del>-</del>	0	•	=	-	5.652	_	0	1.872	9	m	•
_		6.755	12	_		-	-	•	=	໙	6.908	-	_	3.142	=	0	
_		8.067	12	٠,		_	N	5.067	=	m	8.084	_	N	4.288	=	_	
r		9.314	12	m	•	-	m	•	~	0	4.395	<del>.</del>	м	5.375	=	a	•
		3.821	13	0	•	_	đ	•	2	-	5.865	_	¢	6.425	=	м	
		5.449	13	_	7.598	-	Ŋ	•	2	N	7.120	_	ΤŲ	7.450	2		3.856
		6.864	13	N	9.020	٥.	0	2.534	12	м	8.295	N	0	1.979	2	-	5.215
		8.176	4	0	960.9	~	-	•	M	0	4.605		-		4	. ~	6.345
		9.424	4	-			٨	5.176	. M	-	•		•	407.4	-		7 471
		3.965	14	•	9.2.0	٨	94	, ,	<b>M</b>	۰	7. 112	۵۱	, pr	F. 484	H		4 067
		F 000	T.		•	۱۵	4		. M	, r		۰ د	9	6 F 7 6	, H		•
		7.011		-	•		<b>u</b>	A FES	2 2	ه (	•		· M	7 544	7 1	- 6	•
		×6.0	1 11	- 0	•	4 2	١ ،	111	1 3	٠.		J-P	٠.	1000	2 !	4 1	
		170.0	2 :	<b>.</b>		וֹח	٠ د	•	<u> </u>	- (	•	<b>ο</b> Ι	٠ د	2.123	2 :	9 (	100.
		4.5/3	<u>•</u>	٠,	•	M I	-	•	<b>*</b>	N	7.544	m	_	3.399	+	6	
		4.128	9	_	8.252	M	2	5.325	- 2	0	٠	м	N	4.547	44	_	5.644
		5.761	9	N	699.6	m	m	6.493	2	_	6.536	m	m	5.636	4	Q.	6.766
		7.179	17	0	•	m	4	7.614	- N	N		m	4	6.688	15	0	•
		8.494	17	_		\$	0	2.840	16	0	5.288	'n	Ŋ		5	_	5.859
		9.744	17	N	9.845	4	-	4.248	9	-	6.752	4	0	2.286	15	N	6.930
		4.302	<del>2</del>	0		\$	N	5.496	16	N	•	4	_		91	0	4.705
		5.940	18		8.691	4	M	6.664	17	0	5.506	4	N	4.719	16		6.073
		7.361	8	N	10.060	4	¢	7.787	17	-	6.967	•	m	5.810	9	a	7.139
		8.678	6	0	•	Ŋ	0	3.015	17	N	8.183	•	4	6.864	17	0	4.919
		9.926	6-	—	8.910	ĸ	-	4.430	16	0	5.723	Ŋ	0	2.460	17	_	6.287
		4.485	6-	N	10.276	Ŋ	N	5.681	9	-	7.183	Ŋ	_	3.751	17	N	7.349
		6.129	20	0	7.436	Ŋ	m	6.850	9	م	8.397	ιŲ	N	4.904	18	0	5.133
		7.552	20	-	9.129	ın	4	7.975	6	0	5.941	Ń	m	5.999	8	_	6.502
		8.872	21	0		•	0	3.198	6	_	7.399	Ŋ	Ŧ	7.056	9	2	7.559
	_	10.118	21	_	9.349	9	-	4.640	20	0	6.104	9	0	2.643	19	0	5.348
		4.674	22	0	7.877	9	N	5.890	20	-	7.614	9	_	3.944	61	_	6.716
		6.339	22	-	9.569	•	m	7.044	21	0	6.376	9	N	5.099	20	0	5.563
		7.750	23	0	8.098	•	4	8.172	21	_	7.830	9	М	6.198	50	_	.97
		9.075	23	-	9.886	^	0		22	0	6.594	9	4	7.228	5		.77
	•	10.316	24	0	8.319	. ~	-	4.855	22	-	•			2.832			. £
		4.867	54	-	10.103	_	~	•	23	0	6.812	. ~		4-146	22		8
		6.557	25	0	•	_	M	•	23	-	8.262	^	٠ <b>د</b>	•	25		7.401
		7.954	56	0		_	4		54	0	7.029	_	м	6.402	23		.20
		9.285	27	0	8.982	60	0	3.579	24	_	8.477	1	4	7.422	23		19
		5.064	28	0		- 40	-		25	0	7.247	00	0	02	54		6.425
		6.729	59	0	•	0	N	6.269	56	0		60	_	35	25		6.641
		8.161	30	0	9.646	•	M	7.449	27	0	7.683	•	~	50	56		6.857
0		9.500	13	0	80	0	0	3.776	28	0	7.901	0	m	9	27	0	7.073
		5 264	43	-	S	o		020		•		•		67	0		000
													3	٩	2	_	

Table 1. (Continued)

2.456         6         4.107         N         2.457         6         1.507         0         1.727         6         1.507         0         1.727         6         1.507         0         1.727         6         1.607         0         1.507         0         1.507         0         1.507         0         1.507         0         1.507         0         1.507         0         1.507         0         1.507         0         1.507         0         1.507         0         1.507         0         1.507         0         1.507         0         1.507         0         1.507         0         1.507         0         1.507         0         1.507         0         1.507         0         1.507         0         1.507         0         1.507         0         1.507         0         1.507         0         1.507         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0<	2.6         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0         1.0 <th></th> <th>ā</th> <th>= 0.25</th> <th>Æ</th> <th>lpha</th> <th>ii</th> <th>0.01</th> <th></th> <th>- R</th> <th>= 0.25</th> <th>alpha</th> <th>4</th> <th>0.05</th> <th></th> <th>- A</th> <th>= 0.25</th> <th>alpha</th> <th>e e</th> <th>0.10</th>		ā	= 0.25	Æ	lpha	ii	0.01		- R	= 0.25	alpha	4	0.05		- A	= 0.25	alpha	e e	0.10
3.454         6         4 10.491         0         2.2247         6         1 5.307         0         1.727         6         9         9         1.727         6         9         9         1.727         6         9         9         1.727         6         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9	4.5974         9         4.10.491         0         2.2247         0         1.5307         0         1.727         0         1.727         0         1.727         0         1.727         0         1.727         0         1.727         0         1.727         0         1.727         0         1.727         0         1.727         0         1.727         0         1.727         0         1.727         0         1.727         0         1.727         0         1.727         0         1.727         0         1.727         0         1.727         0         1.727         0         1.727         0         1.727         0         1.727         0         1.727         0         1.727         0         1.727         0         1.727         0         1.727         0         1.727         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0 <th>×</th> <th>××</th> <th>t(x1,x2</th> <th></th> <th>1 ×2</th> <th>!!</th> <th>(x1,x2)</th> <th>×</th> <th>X</th> <th></th> <th>×</th> <th>× ×</th> <th>t(x1,x2)</th> <th>×</th> <th>₩ X</th> <th></th> <th>×</th> <th>×</th> <th>t(×1,×</th>	×	××	t(x1,x2		1 ×2	!!	(x1,x2)	×	X		×	× ×	t(x1,x2)	×	₩ X		×	×	t(×1,×
1, 454, 9         9         6, 10,491         0         2, 247         0         1, 727         8         0         1, 727         8         0         1, 757         8         0         1, 757         8         0         1, 757         8         0         1, 757         8         0         0         1, 757         8         0         0         1, 757         8         0         0         1, 757         8         0         0         1, 757         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0	2,454         9         6,10,491         0         2,247         0         1,777         0         1,777         0         1,777         0         1,777         0         0         1,777         0         0         1,777         0         0         1,777         0         0         1,777         0         0         1,777         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0																			
4,379         9         0,5406         0         1,550         0         2,5407         0         1,5406         0         1,5406         0         1,5406         0         1,5406         0         1,5406         0         1,5406         0         1,5406         0         1,5406         0         1,5406         0         1,5406         0         1,5406         0         1,5406         0         1,5406         0         1,5406         0         1,5406         0         1,5406         0         1,5406         0         1,5406         0         1,5406         0         1,5406         0         1,5406         0         1,5406         0         1,5406         0         1,5406         0         1,5406         0         1,5406         0         1,5406         0         1,5406         0         1,5406         0         1,5406         0         1,5406         0         1,5406         0         1,5406         0         1,5406         0         1,5406         0         1,5406         0         0         1,5406         0         0         0         0         0         0         0         0         0         0         0         0         0         0	6.1979         9         0.5446         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466         0.5466	0	0	3.454	~	4	-	0.491	0	0	2.247	€	<b>-</b> 1	5.307	0	0	1.727	₩ .	0	3.441
5.03         10.041         0.2.644         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.2.646         0.	1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,	<b>.</b>	- 1	4.979	- '	·		5.406	0 (	- (	3.558	<b></b>	N	6.432	0 (	- 6	2.917	0	<u>.</u>	4.715
6.735         10.732         2.739         0.740         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750         0.750 <t< td=""><td>6.734         9         2.935         9         4.085         9         4.086         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085<!--</td--><td>5 6</td><td>N I</td><td>9.504</td><td></td><td>- (</td><td></td><td></td><td><b>5</b> (</td><td>N I</td><td>22/.4</td><td>0 (</td><td>· ,</td><td>1.527</td><td>5 (</td><td><b>V</b> I</td><td>ø.</td><td>0 4</td><td>N i</td><td>5.756</td></td></t<>	6.734         9         2.935         9         4.085         9         4.086         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085         9         9.085 </td <td>5 6</td> <td>N I</td> <td>9.504</td> <td></td> <td>- (</td> <td></td> <td></td> <td><b>5</b> (</td> <td>N I</td> <td>22/.4</td> <td>0 (</td> <td>· ,</td> <td>1.527</td> <td>5 (</td> <td><b>V</b> I</td> <td>ø.</td> <td>0 4</td> <td>N i</td> <td>5.756</td>	5 6	N I	9.504		- (			<b>5</b> (	N I	22/.4	0 (	· ,	1.527	5 (	<b>V</b> I	ø.	0 4	N i	5.756
9.631         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636         9.64   0.636	2.6379         9.670         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70         9.70	<b>.</b>	0 <	1.554	-1 4	N 10			<b>&gt;</b> c	n :	2.015	0 0	* <		<b>5</b> 6	9 4	•	0 0	า <	7 26.0
2.503         10         10.403         0         2.503         0         2.703         0         2.703         0         2.703         0         0         2.703         0         0         0.703         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0	2.503         10         2.101         9         2.600         0         0         7.899         0         0         7.899         0         0         7.899         0         0         7.899         0         0         0         7.899         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0		ř s			n 4			•			•	٠.	•	> <	,	•	0 0	* <	1
2.508         10         2.718         0         8.6824         1         2.619         0         7.289         0         7.289         0         7.289         0         7.289         0         7.289         0         7.289         0         7.289         0         7.289         0         7.289         0         7.289         0         7.289         0         0         7.289         0         0         7.289         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0	2.508         10         2.718         0         2.8182         9         2.709         1         2.709         9         2.709         1         2.709         9         2.709         1         2.709         9         2.709         9         2.709         9         2.709         9         2.709         9         2.709         9         2.709         9         2.709         9         2.709         9         2.709         9         2.709         9         2.709         9         2.709         9         2.709         9         2.709         9         2.709         9         2.709         9         2.709         9         2.709         9         2.709         9         2.709         9         2.709         9         2.709         9         2.709         9         2.709         9         2.709         9         2.709         9         2.709         9         2.709         9         2.709         9         2.709         9         2.709         9         2.709         9         2.709         9         2.709         9         2.709         9         2.709         9         2.709         9         2.709         9         9         2.709         9 <td>ь.</td> <td>n e</td> <td>9.831</td> <td></td> <td>5</td> <td>-</td> <td>•</td> <td><b>D</b> (</td> <td>n ·</td> <td></td> <td><b>.</b></td> <td>- 6</td> <td>5.680</td> <td><b>D</b></td> <td>η.</td> <td>•</td> <td><b>&gt;</b> (</td> <td><b>&gt;</b> •</td> <td>3.716</td>	ь.	n e	9.831		5	-	•	<b>D</b> (	n ·		<b>.</b>	- 6	5.680	<b>D</b>	η.	•	<b>&gt;</b> (	<b>&gt;</b> •	3.716
2 6.333         10         2 6.324         1         2 4.077         10         0 4.06         1         2 6.372         9         3         7.097         1         0 1.731         9         3         7.097         1         0 1.732         1         2 4.077         10         0 4.06         1         2 4.047         9         3         7.097         1         0 1.732         1         0 1.003         1         0 1.003         1         0 1.003         1         0 1.003         1         0 1.003         1         0 1.003         1         0 1.003         1         0 1.003         1         0 1.003         1         0 1.003         1         0 1.003         1         0 1.003         1         0 1.003         1         0 1.003         1         0 1.003         1         0 1.003         1         0 1.003         1         0 1.003         1         0 1.003         1         0 1.003         1         0 1.003         1         0 1.003         1         0 1.003         1         0 1.003         1         0 1.003         1         0 1.003         1         0 1.003         1         0 1.003         1         0 1.003         1         0 1.003         1         0 1.003         1	2.533         10         1.235         11         2.503         10         1.738         10         1.738         10         1.738         10         1.738         10         1.738         10         1.738         10         1.738         10         1.738         10         1.738         10         1.738         10         1.738         10         1.738         10         2.708         11         1.748         10         1.748         10         1.748         10         1.748         10         1.748         10         1.748         10         1.748         10         1.748         10         1.748         10         1.748         10         1.748         10         1.748         10         1.748         10         10         1.748         10         10         1.748         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10         10	_	0	3.508	=	0	_		0	0		<b>O</b>	N	6.803	0	ø	7.899	0	<u>.</u>	4.986
2         7.559         10         2         8.624         1         1         3.613         9         4         9.990         1         1         2.006         10         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0	2         5.359         10         2         8.624         1         1         3.613         9         4         8.950         1         1         2.006         10         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0	_	-	5.033	=	-			-	0	2.301	0	ń	7.907	_	0		0	N	6.022
3. 6759         11         5 - 6857         1         2 - 4,777         10         0 - 4,866         1         2 - 6,067         10         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0	3. 7.559         10 3 6.087         1 2 4.777         10 0 4.486         1 2 4.047         9 4 6.865         1 2 4.047         9 4 6.865         1 2 4.047         9 4 6.865         1 1 2 4.055         1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 1 0 0 1         0 0 0 1         0 0 0 1         0 0 0 1         0 0 0 1         0 0 0 1         0 0 0 1         0 0 0 1         0 0 0 1         0 0 0 1         0 0 0 0 1         0 0 0 0 1         0 0 0 0 1         0 0 0 0 1	_	N	6.359	=	2			-	-	3.613	٥	4	8.950	_	_	2.972	•	m	7.028
6 6.772         11 0 6.003         1 9 6.271         10 2 7626         1 9 6.003         1 9 6.271         10 2 7626         1 9 6.003         1 9 6.271         10 2 7626         1 9 6.003         1 9 6.271         10 2 7626         1 1 9 7026         10 1 1 9 7026         10 1 1 9 7026         10 1 1 9 7026         10 1 1 9 7026         10 1 1 9 7026         10 1 1 9 7026         10 1 1 9 7026         10 1 1 9 7026         10 1 1 9 7026         10 1 1 9 7026         10 1 1 9 7026         10 1 1 9 7026         10 1 1 9 7026         10 1 1 9 7026         10 1 1 9 7026         10 1 1 9 7026         10 1 1 9 7026         10 1 1 9 7026         10 1 1 9 7026         10 1 1 9 7026         10 1 1 9 7026         10 1 1 9 7026         10 1 1 9 7026         10 1 1 9 7026         10 1 9 7026         10 1 1 9 7026         10 1 1 9 7026         10 1 9 7026         10 1 9 7026         10 1 9 7026         10 1 9 7026         10 1 9 7026         10 1 9 7026         10 1 9 7026         10 1 9 7026         10 1 9 7026         10 1 9 7026         10 1 9 7026         10 1 9 7026         10 1 9 7026         10 1 9 7026         10 1 9 7026         10 1 9 7026         10 1 9 7026         10 1 9 7026         10 1 9 7026         10 1 9 7026         10 1 9 7026         10 1 9 7026         10 1 9 7026         10 1 9 7026         10 1 9 7026         10 1 9 7026         10 1 9 7026         10 1 9 7026 <t< td=""><td>6 9.672         11 0 6.003         1 3 5.07         10 1 5.856         1 5 5.06         10 0 1         5 5.06         10 0 1         5 5.06         10 0 1         5 5.06         10 0 1         5 5.06         10 0 1         5 5.06         10 0 1         1 5 5.06         10 0 1         1 5 5.06         10 0 1         1 5 5.06         10 0 1         1 5 5.06         10 0 1         1 5 5.06         10 0 1         1 5 5.06         10 0 1         1 5 5.06         10 0 1         1 5 5.06         10 0 1         1 5 5.06         10 0 1         1 5 5.06         10 0 1         1 5 5.06         10 0 1         1 5 5.06         10 0 1         1 5 5.06         10 0 1         1 5 5.06         10 0 1         1 5 5.06         10 0 1         1 5 5.06         10 0 1         1 1 0 1         1 5 5.06         10 0 1         1 5 5.06         10 0 1         1 1 0 1         1 5 5.06         10 0 1         1 1 0 1         1 5 5.06         10 0 1         1 1 0 1         1 5 5.06         1 1 0 1         1 5 5.06         1 1 0 1         1 1 0 1         1 1 0 1         1 1 0 1         1 1 0 1         1 1 0 1         1 1 0 1         1 1 0 1         1 1 0 1         1 1 0 1         1 1 0 1         1 1 0 1         1 1 0 1         1 1 0 1         1 1 0 1         1 1 0 1         1 1 0 1         1 1 0 1         <td< td=""><td>_</td><td>M</td><td>7.589</td><td>=</td><td>6</td><td></td><td></td><td>_</td><td>N</td><td>4.777</td><td>-</td><td>0</td><td>4.486</td><td>_</td><td>N</td><td>4.047</td><td>0</td><td>4</td><td>8.005</td></td<></td></t<>	6 9.672         11 0 6.003         1 3 5.07         10 1 5.856         1 5 5.06         10 0 1         5 5.06         10 0 1         5 5.06         10 0 1         5 5.06         10 0 1         5 5.06         10 0 1         5 5.06         10 0 1         1 5 5.06         10 0 1         1 5 5.06         10 0 1         1 5 5.06         10 0 1         1 5 5.06         10 0 1         1 5 5.06         10 0 1         1 5 5.06         10 0 1         1 5 5.06         10 0 1         1 5 5.06         10 0 1         1 5 5.06         10 0 1         1 5 5.06         10 0 1         1 5 5.06         10 0 1         1 5 5.06         10 0 1         1 5 5.06         10 0 1         1 5 5.06         10 0 1         1 5 5.06         10 0 1         1 5 5.06         10 0 1         1 1 0 1         1 5 5.06         10 0 1         1 5 5.06         10 0 1         1 1 0 1         1 5 5.06         10 0 1         1 1 0 1         1 5 5.06         10 0 1         1 1 0 1         1 5 5.06         1 1 0 1         1 5 5.06         1 1 0 1         1 1 0 1         1 1 0 1         1 1 0 1         1 1 0 1         1 1 0 1         1 1 0 1         1 1 0 1         1 1 0 1         1 1 0 1         1 1 0 1         1 1 0 1         1 1 0 1         1 1 0 1         1 1 0 1         1 1 0 1         1 1 0 1         1 1 0 1 <td< td=""><td>_</td><td>M</td><td>7.589</td><td>=</td><td>6</td><td></td><td></td><td>_</td><td>N</td><td>4.777</td><td>-</td><td>0</td><td>4.486</td><td>_</td><td>N</td><td>4.047</td><td>0</td><td>4</td><td>8.005</td></td<>	_	M	7.589	=	6			_	N	4.777	-	0	4.486	_	N	4.047	0	4	8.005
9.867         11         1         7.669         1         4         6.921         11         5         7.687         11         6         6.928         11         5         7.689         11         6         6.928         11         0         4.689         1         1         9.444         11         1         6         7.955         11         9.446         11         6         6         7.955         11         1         9.446         11         6         6.939         11         1         6         7.955         11         1         9         4.639         1         1         9         4.639         1         1         9         4.639         1         9         4.639         1         9         4.639         1         9         4.639         1         9         4.639         1         9         4.639         1         9         4.639         1         9         4.639         1         9         4.639         1         9         4.639         1         9         4.639         1         9         4.639         1         9         4.639         1         9         4.639         1         9         4.639         1	9.867         11         1.7609         1         4.921         10         2.087         11         1.7609         1         4.021         10         2.087         11         1.7609         1         4.030         1         4.030         1         6.081         1         6.081         1         6.081         1         9.094         10         2         10         2         10         2         10         2         10         2         10         2         10         2         10         2         10         2         10         2         10         2         10         2         10         10         2         10         10         2         10         10         2         10         10         2         10         10         2         10         10         2         10         10         2         10         10         2         10         10         2         10         10         2         10         10         2         10         10         10         2         10         10         2         2         10         2         2         10         2         2         10         2         2 <t< td=""><td>_</td><td>4</td><td>8.762</td><td>-</td><td>0</td><td>_</td><td></td><td>-</td><td>M</td><td>5.871</td><td>-</td><td>-</td><td>5.856</td><td><u>-</u></td><td>rò</td><td>5.066</td><td>9</td><td>0</td><td>3.991</td></t<>	_	4	8.762	-	0	_		-	M	5.871	-	-	5.856	<u>-</u>	rò	5.066	9	0	3.991
2.5.67         11         2.6.902         1         5.7941         11         3.6.181         1         5.7012         10         3.6.181         1         5.7012         10         3.6.183         1         5.7941         1         5.243         1         5.7012         10         3.6.183         1         6.244         11         1         6.243         2         1         1.944         1         1         6.243         2         2         4.245         1         1.944         1         1         6.243         2         2         4.245         1         1.944         1         1         6.243         2         2         4.241         1         6.654         1         1.945         1         1.945         1         1.945         1         1.945         1         1.946         1         1.946         1         1.946         1         1.946         1         1.946         1         1.946         1         1.946         1         1.946         1         1.946         1         1.946         1         1.946         1         1.946         1         1.946         1         1.946         1         1.946         1         1.946         1         1	5.507         11         2.002         1         5.7941         10         3.6181         1         5.7012         10         2         6.528         1         5.2444         11         5.2430         1         5.7012         10         3         6.528         1         1.944         1         1         6.2430         2         0         1.944         1         0         1         0         1         0         1         0         1         0         1         0         1         0         1         0         1         0         1         0         1         0         0         1         0         1         0         1         0         0         0         1         0         0         0         1         0         0         1         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0<		in	9.887		-		•	-	đ	6.921	0	N	7.087	سنة	4	6.051	9	-	5.261
2 6.200         11         3 10.133         1         6 0.336         11         0 4.030         1         6 0.7955         10         1         3 10.133         1         6 0.233         1         1         0 1.944         11         2         7.636         2         1         3 10.133         1         0 1.944         11         2         7.636         1         1         1         1         0 1.944         11         1         0 1.944         11         1         0 1.944         11         1         0 1.944         11         1         0 1.944         11         1         0 1.944         11         1         0 1.944         11         1         0 1.944         11         1         0 1.944         11         1         0 1.944         11         1         0 1.945         1         1         0 1.944         1         0 1.944         1         0 1.944         1         0 1.944         1         0 1.944         1         0 1.944         1         0 1.944         1         0 1.944         1         0 1.944         1         0 1.944         1         0 1.944         1         0 1.944         1         0 1.944         1         1         0 1.944         1	2         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6		0	3.671	-	~	_		-	Ę		10	P)	8.181	-	TU.	7.012	0	~	6.292
2         6.526         12         6.243         2         9.464         11         6.243         2         0.1944         11         2         9.1944         11         0.243         2         0.1944         11         0.243         2         0.1944         11         0.243         2         0.1944         11         0.243         0.244         11         0.243         0.244         11         0.243         0.244         11         0.243         0.244         11         0.243         0.244         11         0.243         0.244         11         0.243         0.244         11         0.244         0.244         11         0.244         0.244         0.244         0.244         0.244         0.244         0.244         0.244         0.244         0.244         0.244         0.244         0.244         0.244         0.244         0.244         0.244         0.244         0.244         0.244         0.244         0.244         0.244         0.244         0.244         0.244         0.244         0.244         0.244         0.244         0.244         0.244         0.244         0.244         0.244         0.244         0.244         0.244         0.244         0.244         0.244 <t< td=""><td>2         6.526         12         6.246         11         6.243         2         1.944         11         6.243         2         1.944         11         6.243         2         1.944         11         1         1.944         11         1         1.944         11         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1</td><td></td><td>-</td><td>5.200</td><td></td><td></td><td>-</td><td></td><td>-</td><td>4</td><td>8.038</td><td>=</td><td>0</td><td>4. 830</td><td>-</td><td>4</td><td>7 055</td><td><u>-</u></td><td>ı #</td><td>7.294</td></t<>	2         6.526         12         6.246         11         6.243         2         1.944         11         6.243         2         1.944         11         6.243         2         1.944         11         1         1.944         11         1         1.944         11         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1		-	5.200			-		-	4	8.038	=	0	4. 830	-	4	7 055	<u>-</u>	ı #	7.294
3.875         12.89         2.1.378         11.2.89         2.1.378         11.2.89         2.1.378         11.2.89         2.2.4.99         11.2.89         2.2.4.22         11.1.2         2.3.476         12.89         12.82         2.4.22         11.1.2         2.4.22         11.1.2         2.4.22         11.1.2         2.4.22         11.1.2         2.4.22         11.1.2         2.4.22         11.1.2         2.4.22         11.1.2         2.4.22         11.1.2         2.4.22         11.1.2         2.4.22         11.1.2         2.4.22         11.1.2         2.4.22         11.1.2         2.4.22         11.1.2         2.4.22         11.2         2.4.22         11.2         2.4.22         11.2         2.4.22         11.2         2.4.22         11.2         2.4.22         11.2         2.4.22         11.2         2.4.22         11.2         2.4.22         11.2         2.4.22         11.2         2.4.22         11.2         2.4.22         11.2         2.4.22         11.2         2.4.22         11.2         2.4.22         11.2         2.4.22         11.2         2.4.22         11.2         2.4.22         11.2         2.4.22         11.2         2.4.22         11.2         2.4.22         11.2         2.4.22         11.2         2.4.22	7.759         12. 1         7.789         2. 2, 9.46         11. 2         7.360         2. 4.221         11. 2         7.360         2. 4.221         11. 3         9.455         2. 4.221         11. 3         9.455         12. 2         9.465         12. 2         9.465         12. 2         9.465         12. 2         9.465         12. 2         9.465         12. 2         9.465         12. 2         9.465         12. 2         9.564         12. 2         9.564         12. 2         9.564         12. 2         9.564         12. 2         9.564         12. 2         9.654         12. 2         9.654         12. 2         9.654         12. 2         9.654         12. 2         9.654         12. 2         9.654         12. 2         9.654         12. 2         9.654         12. 2         9.654         12. 2         9.654         12. 2         9.654         12. 2         9.654         12. 2         9.654         12. 2         9.654         12. 2         9.654         12. 2         9.654         12. 2         9.654         12. 2         9.654         12. 2         9.654         12. 2         9.654         12. 2         9.654         12. 2         9.654         12. 2         9.654         12. 2         9.654         12. 2 <td></td> <td>•</td> <td>6.528</td> <td></td> <td></td> <td></td> <td>• 1</td> <td>•</td> <td>-</td> <td></td> <td>=</td> <td>-</td> <td>6.243</td> <td>٠.</td> <td>-</td> <td>1.944</td> <td>=</td> <td>· c</td> <td>4.268</td>		•	6.528				• 1	•	-		=	-	6.243	٠.	-	1.944	=	· c	4.268
4         69.93         11.2         2         9.946         11.5         6.456         2         2.446         11.5         2         4.946         11.5         2         4.221         11.5         2         4.221         11.5         2         4.421         12.6         6.574         2         4.422         11.5         2         4.421         12.6         6.574         2         4.422         11.5         2         4.422         11.5         2         4.422         11.5         2         4.422         11.5         2         4.422         11.5         2         4.422         11.5         2         4.422         11.5         2         4.422         11.5         2         4.422         11.5         2         4.422         11.5         2         4.422         11.5         2         4.422         11.5         2         4.422         11.5         3         6.424         12.6         6.446         12.6         6.446         12.6         6.446         12.6         6.446         12.6         6.446         12.6         6.446         12.6         6.446         12.6         6.446         12.6         6.446         12.6         6.446         12.6         6.446         12.6	6.933         11.2         2.9163         2.2         4.946         11.3         6.456         2.2         4.946         11.3         6.456         2.2         4.946         12.0         5.111         2.2         4.221         11.2         2.2         6.946         12.0         6.511         2.5         4.221         11.2         3.5436         13.0         13.0         6.5436         12.0         6.511         2.5         5.116         2.5         5.116         2.5         5.116         2.5         5.116         2.5         5.116         2.5         5.116         2.5         5.116         2.5         5.116         2.5         5.116         2.5         5.116         2.5         5.116         2.5         5.116         2.5         5.116         2.5         5.116         2.5         5.116         2.5         5.116         2.5         5.116         2.5         5.116         2.5         5.116         2.5         5.116         2.5         5.116         2.5         5.116         2.5         5.116         2.5         5.116         2.5         5.116         2.5         5.116         2.5         5.116         2.5         5.116         2.5         5.116         2.5         5.116         2.5		M	7 750	- 2	-		•		-	7.781	=		7 360		, <del>-</del>	7 142	:	-	
6.758         13         6.574         12         5.111         2         5.224         11         15         11         15         11         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15         15	3.878         12.574         2.574         12.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         2.574         <		7	0 021	- 3	- 6	_ =	٠.	io	- 0	0000	- :	J 14	200.0		- 6	3.00	:	- c	4 400
5,435         13         6,574         2         7,004         12         6,534         2         7,104         12         7,033         2         7,106         12         7,033         2         7,106         12         7,033         2         7,106         12         7,033         2         7,106         12         7,033         2         7,106         12         7,106         12         7,033         2         7,106         12         7,106         12         7,033         2         7,106         12         7,106         12         7,106         12         7,106         12         7,106         12         7,106         12         7,106         13         2         7,106         13         2         7,106         12         7,106         12         7,106         12         7,106         12         7,106         12         7,106         13         2         7,106         13         2         7,106         13         2         7,106         13         2         7,106         13         2         7,106         13         2         7,106         13         2         7,106         2         7,106         2         7,106         2         7,106	5,435         13         6,574         2         7,004         12         6,573         2         7,106         12         7,633         2         7,106         12         2         7,106         12         2         7,106         12         2         7,106         12         1         2,543         12         7,106         12         12         2         7,106         12         2         7,106         12         2         7,106         12         2         7,106         12         2         7,106         12         2         7,106         12         2         7,106         12         2         7,106         12         2         7,106         12         2         7,106         12         2         7,106         12         2         7,106         12         12         2         7,106         13         4         7,333         13         3         6,106         13         6,106         12         13         6,106         12         14         14         14         14         14         14         14         14         14         14         14         14         14         14         14         14         14         14 <t< td=""><td></td><td>F N</td><td>9</td><td>- :</td><td>JF</td><td></td><td></td><td>4 (</td><td>4 1</td><td>é</td><td></td><td>١ (</td><td>64.0</td><td><b>.</b></td><td></td><td>1000</td><td>::</td><td><b>4</b> P</td><td>0.11</td></t<>		F N	9	- :	JF			4 (	4 1	é		١ (	64.0	<b>.</b>		1000	::	<b>4</b> P	0.11
5.435         13         0         0.574         2         4         7.090         12         7         6.544         2         4         7.090         12         7         6.544         2         4.43         3         9         2.571         12         3         6.564         3         1         2.517         12         3         6.564         3         1         2.517         12         3         6.564         3         1         2.517         12         3         6.564         3         1         3         6.684         3         6.517         12         3         6.684         3         1         3         6.684         3         1         3         6.684         3         1         3         6.684         3         6.684         3         6.684         3         6.684         3         6.684         3         6.684         3         6.684         3         6.684         3         6.684         3         6.684         3         6.684         3         6.684         3         6.684         3         6.684         3         6.684         3         6.684         3         6.689         1         6.684         3         6.	5,435         13         0.594         2         4,100         12         1         2,534         2         4,130         12         2,534         2         4,130         12         2         7,634         2         6,130         12         2         1         2         4,635         12         2         6,134         1         2         6,130         12         1         1         6,644         3         4,627         13         1         6,684         3         6,274         13         1         6,684         3         1         6,684         3         1         2,545         1         3         6,449         3         1         3,546         1         1         6,684         3         1         6,684         3         1         6,684         3         6,274         1         6,684         3         6,274         1         6,684         3         1         6,684         3         1         6,684         3         1         6,684         3         1         6,684         3         1         6,684         3         1         6,684         3         1         3         6,444         1         1         6,694         3		9	5 1	= :	9 6	- '		y c	ń			٠.	70.	<b>.</b>	9	2.545	= :	<b>1</b>	1.004
5,758         13         2,04178         2         5,554         2         5,116         12         2         7,633         2         5,716         12         2         7,166         12         2         7,166         12         2         7,166         12         2         7,166         12         2         7,166         12         2         7,166         12         2         7,166         12         2         7,166         12         2         7,166         12         3         6,664         3         2         6,566         13         1         6,064         3         3         6,274         13         3         6,664         3         3         6,664         3         3         6,664         3         3         6,694         3         3         6,694         13         3         6,694         13         3         6,694         13         3         6,694         13         3         6,694         13         3         6,694         13         6         6,444         13         13         6         6,694         13         6         6,444         13         13         6         6,994         6         6,994         6 <t< td=""><td>5.455         13         1         6.178         1         2         7.633         2         5.718         12         2         7.633         2         5.718         12         2         7.186         12         2         7.186         12         2         7.186         12         2         7.186         12         2         7.186         12         2         7.186         12         2         7.186         12         2         7.186         12         2         7.186         12         2         7.186         12         2         7.186         12         2         7.186         12         2         7.186         12         2         7.646         13         1         4.001         13         0         2.151         12         2         5.196         14         0         6.684         13         1         4.001         14         0         6.684         13         1         4.001         18         0         6.196         14         0         6.684         13         1         4.001         18         0         6.190         13         1         4.001         18         0         6.190         13         1         4.001</td><td></td><td>&gt;</td><td>2.078</td><td></td><td>•</td><td>_ '</td><td></td><td>V</td><td><b>†</b> (</td><td>0.0.0</td><td>2</td><td>- 1</td><td>6.554</td><td>~</td><td>· *</td><td>6.233</td><td>2</td><td>9</td><td>4.545</td></t<>	5.455         13         1         6.178         1         2         7.633         2         5.718         12         2         7.633         2         5.718         12         2         7.186         12         2         7.186         12         2         7.186         12         2         7.186         12         2         7.186         12         2         7.186         12         2         7.186         12         2         7.186         12         2         7.186         12         2         7.186         12         2         7.186         12         2         7.186         12         2         7.186         12         2         7.646         13         1         4.001         13         0         2.151         12         2         5.196         14         0         6.684         13         1         4.001         14         0         6.684         13         1         4.001         18         0         6.196         14         0         6.684         13         1         4.001         18         0         6.190         13         1         4.001         18         0         6.190         13         1         4.001		>	2.078		•	_ '		V	<b>†</b> (	0.0.0	2	- 1	6.554	~	· *	6.233	2	9	4.545
2         6.758         13         2         5.594         2         6.8130         12         2         7.78         3         6.841         13         2         6.841         3         2         6.712         13         1         6.664         3         1         3.352         13         0         2.151         12         2         6.841         3         2         5.172         13         1         6.664         3         1         3.352         13         1         6.664         3         1         3.352         13         1         6.664         3         1         3.352         13         1         6.664         3         1         3.352         13         6.667         3         1         3.452         13         6.667         3         6.444         13         3.567         14         6.667         3         6.677         1         6.697         1         6.961         1         6.444         13         3         6.444         1         6.444         1         6.444         1         6.444         1         6.444         1         6.444         1         6.444         1         6.444         1         6.444         1	5         6,78         13         2         9,463         3         0         2,071         13         3,6594         2         0         8,130         12         2         9,463         3         1         2,084         3         1         2,684         3         1         2,684         3         1         2,684         3         1         3,584         3         2         4,450         13         2         4,450         13         3         3         4,450         13         3         3         4,450         13         3         3         4,450         13         3         3         4,450         13         3         3         4,450         13         3         3         4,450         13         3         3         4,450         13         3         3         6,444         13         3         3         6,444         13         3         6,444         13         3         6,444         13         3         6,444         13         3         6,444         13         3         6,444         13         3         6,444         13         3         6,444         13         3         6,444         13         3		- 1	5.435		-			N	in (	8.118	2	NI I	7.633	N	in ·	7.186	2		5.805
9 7.981         13 9 6.887         3 1 4.001         13 0 5.392         3 0 2.151         12 3 7           9 10.288         14 1 6.462         3 2 6.274         13 2 7.781         3 2 4.450         13 1 3.462         13 2 7.781         3 2 4.450         13 1 3.462         13 2 7.781         3 2 4.450         13 1 3.462         14 1 6.664         3 1 3.462         13 2 7.781         3 2 4.450         13 2 7.407         14 1 6.664         3 1 3.462         14 1 6.664         3 1 3.462         14 1 6.667         3 4 6.444         13 2 7.407         14 1 6.961         3 2 4.464         13 2 7.407         14 1 6.961         3 2 4.464         13 2 7.407         14 1 6.961         3 2 4.464         13 2 7.407         14 1 6.961         3 2 4.407         14 1 6.961         3 2 4.407         14 1 6.961         3 2 4.407         14 1 6.961         3 2 4.407         15 1 7.237         4 2 5.954         4 1 3.407         14 1 6.961         14 1 7.237         14 1 7.237         14 1 7.237         14 1 7.237         14 1 7.237         15 1 7.237         15 1 7.237         15 1 7.237         15 1 7.237         15 1 7.237         15 1 7.237         15 1 7.237         15 1 7.237         15 1 7.237         15 1 7.237         15 1 7.237         15 1 7.237         15 1 7.237         15 1 7.237         15 1 7.237         15 1 7.237         15 1 7.237	9         7,981         13         10,289         3         1 6,684         3         1 5,108         3         1 6,684         3         2 1,151         12         3         6,684         3         2 6,172         13         0 6,684         3         2 4,456         13         1         3 4,456         13         1         3 4,456         13         1         3 4,456         13         1         3 4,456         13         1         3 4,456         13         1         3 4,456         13         1         3 4,444         1         3 5,489         13         2         4,456         1         4,456         1         4,456         1         4,456         1         4,456         1         4,456         1         4,456         1         4,456         1         4,456         1         4,456         1         4,456         1         4,456         1         4,456         1         4,456         1         4,456         1         4,456         1         4,456         1         4,456         1         4,456         1         4,456         1         4,456         1         4,456         1         4,456         1         4,456         1         4,456         1 <td>٠.</td> <td>N I</td> <td>6.758</td> <td>-</td> <td>2</td> <td></td> <td>9.463</td> <td>M) I</td> <td>0</td> <td>2.671</td> <td>2</td> <td><b>1</b></td> <td>8.594</td> <td>NJ i</td> <td>9</td> <td>8.130</td> <td>2</td> <td>N I</td> <td>6.756</td>	٠.	N I	6.758	-	2		9.463	M) I	0	2.671	2	<b>1</b>	8.594	NJ i	9	8.130	2	N I	6.756
9.155         14         0.6861         3         2.5172         13         1.6684         3         1         3.362         13         0         49.155         14         0.6861         3         1.566         14         0.6843         3         1.333         13         1         6.684         3         1.5460         13         1         0.4461         13         3         0.2748         1         0.2748         1         0.2761         14         0         5.607         3         0.4444         13         0.4444         13         0.4444         13         0.4444         13         0.4444         13         0.4444         13         0.4444         13         0.4444         13         0.4444         13         0.4444         13         0.4444         13         0.4444         13         0.4444         13         0.4444         13         0.4444         13         0.4444         13         0.4444         13         0.4444         13         0.4444         13         0.4444         13         0.4444         13         0.4444         13         0.4444         13         0.4444         13         0.4444         13         0.4444         13         0.4444         13	9.155         14         0.6861         3         2.5772         13         1 6.684         3         13.362         13         0         13         0         15.684         3         1.5772         13         1 6.684         3         13.362         13         0         0         13         0         0         0         13         0         0         0         13         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0	_	ή.	7.981	-	•	= `	0.687	ri (	- 1	4.001	2	0	5.392	rio i	0	2.151	2	m	7.825
5 10.288         14 1 8 1.8462         3 5 6.274         13 2 7.781         3 2 7.781         3 2 7.481         3 5 6.490         13 1 1 2 1 8 6.450         13 1 1 2 1 8 6.450         13 2 7.487         14 1 8 6.663         3 5 6.490         13 3 1 8 6.490         13 3 1 8 6.490         13 3 1 8 6.490         13 3 1 8 6.490         13 3 1 8 6.490         13 3 1 8 6.490         13 3 1 8 6.490         13 3 1 8 6.490         13 3 1 8 6.490         13 3 1 8 6.490         13 3 1 8 6.490         13 3 1 8 6.490         13 3 1 8 6.490         13 3 1 8 6.490         14 5 6.60         14 5 6.60         14 5 6.60         14 5 6.60         14 6 6.60         14 5 6.60         14 5 6.60         14 5 6.60         14 5 6.60         14 5 6.60         14 5 6.60         14 5 6.60         14 5 6.60         14 5 6.60         14 5 6.60         14 5 6.60         14 5 6.60         14 5 6.60         14 5 6.60         14 5 6.60         14 5 6.60         14 5 6.60         14 5 6.60         14 5 6.60         14 5 6.60         14 5 6.60         14 5 6.60         14 5 6.60         14 5 6.60         14 5 6.60         14 5 6.60         14 5 6.60         14 5 6.60         14 5 6.60         14 5 6.60         14 5 6.60         14 5 6.60         14 5 6.60         14 5 6.60         14 5 6.60         14 5 6.60         14 5 6.60         14 5 6.60         14 5 6.60         14 5 6.60         14 5 6.60<	9.406         14         1.6462         3         9.274         13         2         7.781         3         2.6490         13         1         1.666         3         5.677         14         1         6.667         3         5.673         14         0         5.607         3         6.7440         13         3         5.4440         13         3         5.4440         13         3         5.4440         13         3         5.4440         13         3         5.4440         13         3         5.4440         13         3         5.4440         13         3         5.4440         13         3         5.4440         13         3         5.4440         13         3         5.4440         14         16         6.961         4         7.427         14         16         16         17         17         17         17         17         17         17         17         17         17         17         17         17         17         17         17         17         17         17         18         17         17         17         18         17         17         17         18         17         17         17         18 <t< td=""><td></td><td><b>3</b> 1</td><td>9.155</td><td>ž ;</td><td>•</td><td></td><td></td><td>M 1</td><td>N I</td><td>5.172</td><td>2</td><td><b>-</b> •</td><td>6.684</td><td>M 1</td><td>- 1</td><td>3.362</td><td>2</td><td>0</td><td>4.823</td></t<>		<b>3</b> 1	9.155	ž ;	•			M 1	N I	5.172	2	<b>-</b> •	6.684	M 1	- 1	3.362	2	0	4.823
9.656         15         0.7148         3.4         7.333         13         3.8.663         3.5.489         13         2.7497           2.656         15         0.7149         3.6         0.366         14         16.607         3.5.499         13         2.7497           3.6226         15         1.0199         4.14267         14         2.607         3.5         7.497         14         1.6467         14         1.6444         13         2.7497         14         1.6467         14         1.6444         13         2.7497         14         2.7497         14         2.7497         14         2.7497         14         2.7497         14         2.7497         14         2.7497         15         1.7237         4         2.6467         14         4.6668         14         1.6468         4         1.6468         14         1.6468         14         1.6468         14         1.6468         14         1.6468         14         1.6468         14         1.6468         14         1.6468         14         1.6689         14         1.6689         14         1.6689         14         1.6689         14         1.6689         14         1.6689         14         1.6689	9.108         14         2         7.748         3         4         7.333         13         3         8.663         3         3         5.690         13         2         7.499         15         6.749         13         2         7.499         15         6.986         15         7.407         14         1         6.607         3         3         5.6499         13         2         7.497         14         1         6.607         3         3         5.6499         13         2         7.407         14         1         6.607         3         3         5.6499         13         2         7.407         14         1         6.607         3         3         5.6499         13         2         7.407         14         1         6.607         3         3         5.6499         13         2         7.407         14         1         6.607         3         3         5.6499         14         1         6.607         3         3         5.6499         13         6.657         14         6         6         6         6         6         6         6         6         6         6         6         6         6         6			10.288	7	-			M)	M	6.274	- 3	N	7.781	m	N	4.450	_	-	6.077
1         5.656         15         0         7.146         3         5         6.368         14         0         5.607         3         4         6.444         13         3         8         2         2.501         14         1         6.601         3         4         6.444         13         3         8         2         8         2.861         4         0         5.661         4         0         5.641         3         6.444         14         2         6.444         14         2         6.444         14         2         6.444         14         2         6.444         14         2         6.444         14         2         6.444         14         2         6.444         14         2         6.444         14         2         6.444         14         6         6         14         14         6         6         14         14         6         6         14         14         6         6         14         14         6         6         14         14         6         6         14         14         6         6         14         14         6         6         14         14         6         6	1         5.656         15         0         7.146         3         5         6.368         14         0         5.607         3         4         6.444         13         3         8         2         2         6.447         1         6.444         13         3         8         2         2         6.447         1         6.444         13         3         8         2         2         6.422         15         0         5.054         4         1         3.607         14         0         5.054         4         1         3.607         14         0         5.054         4         1         3.607         14         0         5.054         4         1         3.607         14         0         5.054         4         1         3.607         14         0         5.054         4         1         3.607         14         0         5.054         4         1         3.607         14         0         5.054         4         1         3.607         14         0         5.054         14         0         5.054         14         0         5.057         14         0         5.057         14         0         5.057	_	0	4.108	7	N .		9.748	M	4	7,333	m	m	8.863	m	m	5.489	7	C)	7.095
2         6.988         15         1         8.747         4         0         2.901         14         1         6.961         3         5.7407         14         0         2.902         14         1         6.966         3         5.7407         14         1         6.966         4         1         6.537         15         1         7.237         4         1         6.637         14         1         6         14         1         6         6         1         4         1         6         6         1         4         1         6         6         1         4         1         6         6         6         6         6         6         6         6         6         1         4         1         6         6         6         1         4         1         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6	6.286 15 1 8.747		-	5.656		0	_		M	Ŋ		4	0	2.607	m	¢	9.444	m	m	
3         8.228         15         2         10.019         4         1         4.267         14         2         8.058         4         0         2.381         14         1         6         1         9.007         14         2         5.422         15         0         5.954         4         0         2.331         4         0         2.381         14         1         1         1         1         1         1         1         1         2         0.954         4         7.599         15         2         0.954         4         6.681         14         1         6         1         2         0.596         16         0         6.174         4         6.681         14         1         6         6.681         14         1         6         6         6         1         1         6.681         1         6         6.681         14         1         6         6         1         6         6         1         6         6         1         6         6         1         6         6         1         6         6         1         6         6         1         6         6         1         1	9.226         15         2         10.019         4         1         4.267         14         2         6.058         4         0         2.381         14         1         4.668         14         2         4.267         14         2         4.668         14         2         6.681         14         2         6.681         14         2         6.681         14         2         6.681         14         2         6.681         14         2         6.681         14         2         6.681         14         2         6.681         15         1         6.681         14         2         6.681         14         2         6.681         14         2         6.681         14         2         6.681         14         4         6.681         14         4         6.681         14         6         6.681         14         6         6.681         14         6         6.681         14         6         6.681         14         6         6.681         14         6         6.681         14         6         6.681         14         6         6.681         14         6         6.681         14         6         6.681         14         <	_	N I	6.988	-	- 1	~ ;	•	4	0		<b>4</b>	-	6.961	m	Ŋ.	7.407	4	0	
4         9,407         16         0         7,435         4         2         5,422         15         0         5,594         4         1         3,607         14         2         7         4         9,407         16         1         5,594         4         1         3,607         14         2         7,646         15         1         3,507         14         2         7,646         17         1         9,319         4         7,599         16         0         6,174         4         4         6,681         15         1         6,681         15         1         1         6,681         15         1         7,646         15         2         7,646         15         2         7,646         15         2         7,646         15         1         6,681         14         4         6,681         14         4         6,681         14         5         7,646         15         1         6,681         14         6         6,681         14         6         6,681         14         6         6,681         14         7         6         6,681         14         6         6,681         14         6         6,681         14	9.407         16         0         7.435         4         2         5.422         15         0         5.954         4         1         3.607         14         2         7         9.407         16         0         5.954         4         1         3.607         14         2         7         1         0.545         16         0         6.174         4         6.681         14         3         6.681         14         3         6.681         14         3         6.681         15         7         7         6.681         15         1         7.514         4         6.681         15         1         7         6.681         15         1         7.514         4         6.681         15         1         6.681         15         1         6.681         15         1         6.681         16         2         6.734         17         1         7         6         6.459         16         0         6.174         4         6.681         16         2         6.615         16         2         6.615         16         2         6.615         16         2         6.615         16         2         6.615         16         2	_	m .	8.228	-	2	-	•	<b>.</b>	- 1	•	*	~	8.058	4	0	2.381	4	-	•
5 10.545         16 1 9.031         4 3 6.537         15 1 7.237         4 2 6.68         14 3 8           0 4.352         16 2 10.299         4 4 7.599         15 2 8.331         4 5 5.692         15 0         5           1 5.914         17 2 10.299         4 7.599         15 2 8.331         4 6 6.681         15 10.59         6         6.174         4 6 6.681         15 10.59         6         6.174         4 6 6.681         15 10.59         6         6.174         4 6 6.681         15 10.59         6         6.174         4 6 6.681         15 10.59         6         6.174         4 6 6.681         15 10.59         6         6.174         4 6 6.681         15 10.59         6         6.174         4 6 6.681         15 10.59         6         6.174         4 6 6.681         15 10.59         6         6         6.174         4 6 6.681         15 10.59         16 10.59         16 10.59         16 10.59         16 10.59         17 10.59         17 10.59         17 10.59         17 10.59         17 10.59         17 10.59         17 10.59         17 10.59         17 10.59         17 10.59         18 10.59         18 10.59         18 10.59         18 10.59         18 10.59         18 10.59         18 10.59         18 10.59         18 10.59         18 10.59	10.545         16         1         9.031         4         3         6.537         15         1         7.237         4         2         4.668         14         3         8         1         4         3         6.537         15         1         7.646         14         3         8         6.537         15         1         2         6.331         4         3         6.668         14         3         8         6.692         15         0         6.617         4         3         6.681         15         0         5         6.681         15         0         5         6.681         15         0         5         7         6.681         15         16         17         6.681         15         16         17         6.681         15         17         6.681         16         17         6.681         16         17         6.681         16         17         6.681         16         17         6.681         16         17         6.681         16         17         6.681         16         17         6.681         16         17         6.681         18         19         17         18         6.681         18         19	_	<b>3</b>	6.407	¥ .	·		•	4	N	•	Ť.	0	5.954	4	-	3.607	<b>*</b>	ć	٠
0         4,352         16         2 10,299         4         7.599         15         2 8,331         4         3 5,692         15         0         6,174         4         6,681         15         1         0         15         1         4         6,681         15         1         0         0         15         1         0         0         1         1         0         0         1         1         0         0         1         0         0         1         1         0         0         1         0         0         1         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0	4.352         16         2         10.299         4         7.599         15         2         8.331         4         3         5.692         15         0         6.174         4         6.681         15         1         7.544         17         7         7.223         4         5         8.569         16         0         6.174         4         6.681         15         1         7.646         15         1         7.646         15         1         7.646         15         1         7.646         15         1         7.646         15         2         6.615         1         7.646         15         1         6.616         1         6.458         5         1         6.458         1         7.646         15         2         6.635         1         7.646         15         2         6.635         1         7.646         15         1         6.6458         1         7.646         15         1         6.6458         1         7.646         1         6.6458         1         6.6458         1         1         6.6458         1         1         6.6468         1         6.7458         1         6.6488         1         7.6468         1	_	ល	10.545	7	-		•	4	M		5	_	7.237	4	N	4.668	4	M	
1         5.914         17         0         7.723         4         5         8.569         16         0         6.174         4         6.681         15         1         6.484         15         1         7.514         4         6.681         15         2         7.646         15         2         7.646         15         2         7.646         15         2         7.646         15         2         7.646         15         2         7.646         15         2         7.646         15         2         7.646         15         2         7.646         15         2         7.646         15         2         7.646         15         2         7.646         15         2         7.646         15         2         7.646         15         2         7.646         15         2         7.646         15         2         7.646         15         2         6         4         6         7.733         17         1         7.646         15         2         7.646         15         2         6         7.793         17         2         9.033         17         2         9.033         1         7         2         9.033         1	5.914         17         0         7.723         4         5         8.569         16         0         6.174         4         6.681         15         1           7.244         17         1         9.319         5         0         3.145         16         1         7.514         4         6.681         15         2           6.489         17         1         7.514         4         6.625         16         0         2.625         16         0         5         7         6.648         5         1         3.645         16         0         2.625         16         0         5         6         7.793         17         1         7.869         5         2         4.695         16         1         6         2         6.738         17         1         7.869         5         2         4.913         16         1         6         2         6.913         16         1         6.738         17         1         7.869         5         2         4.913         16         1         7.969         16         1         7.969         17         2         9.913         1         7.869         17         2         <		0	4.352	2	0	=	•	4	đ	7.599	<u>.</u>	N	8.331	4	М	5.692	5	0	•
2         7.244         17         1         9.319         5         0         3.145         16         1         7.514         4         5         7.646         15         2         8.729         5         0         2.625         16         0         5         1         4.549         16         2         8.729         5         0         2.625         16         0         5         1         0         2.625         16         0         5         1         4.699         16         2         8.729         5         0         2.625         16         0         5         1         6.738         17         1         7.646         15         1         16         1         6         1         1         16         1         1         16         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1	7.244         17         1         9.319         5         0         3.145         16         1         7.514         4         5         7.646         15         2         6.729         5         0         2.625         16         0         5         1         4.549         16         2         6.729         5         0         2.625         16         0         5         6         16         2         6.729         5         0         2.625         16         0         5         6         16         2         6.729         5         0         2.625         16         0         5         6         16         1         7.869         5         2         4.913         16         1         6         1         6         1         6         1         6         1         7.93         17         0         5         6         1         6         1         7.93         17         0         5         6         7.93         17         0         9         17         0         9         17         0         9         17         0         9         17         0         9         17         0         9		-	5.914	-	0	_	•	4	Ŋ	8.569	9	0	6.174	4	4	6.681	T.	<u>-</u> -	
3         8,469         17         2         10,579         16         2         8,729         5         1         4,549         16         2         8,729         5         1         4,6549         16         2         8,729         5         1         3,865         16         1         6         1         6,458         5         1         3,865         16         1         6         1         6         1         1         7,869         5         2         4,913         16         1         6         1         6         1         1         7,869         1         7,13         1         7         8         6         6         7,793         1         7,793         1         7,793         1         7         8         6         7,793         1         7,793         1         7         8         6         6         7,793         1         7         8         9         1         1         8         1         7         8         9         1         1         8         1         7         7         8         1         7         7         8         1         7         7         9         9         <	8,489       17       2       10,579       5       1       4,549       16       2       8,729       5       1       3,865       16       0       5       10,572       17       0       6,458       5       1       3,865       16       1       0       5       1       3,865       16       1       0       5       1       3,865       16       1       0       5       1       3,865       16       1       0       5       1       3,865       16       1       0       5       1       0       5       1       0       5       1       0       5       1       0       5       1       0       5       1       0       5       1       0       5       0       2,038       1       0       0       0       2       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       <		N	7.244	=	-	•	•	Ľή	0	3.145	16	_	7.514	4	ß	7.646	15	8	
4         9.672         18         0         8.010         5         2         5.639         17         0         6.458         5         1         3.865         16         1         6         1         1         1         1         3.669         5         1         3.669         5         1         3.655         16         1         6         6         6.798         5         6         9.238         17         0         5         7.697         5         2         4.913         16         2         7.938         17         0         5         7.938         17         0         5         7.938         17         0         5         7.938         17         0         5         7.938         17         0         5         7.938         17         0         5         7.938         17         0         5         7.938         17         0         5         7.938         17         0         5         7.938         18         1         0         7.938         18         1         0         7.938         18         1         0         7.938         1         0         7.938         1         0         7.938         <	9.672 18 0 8.010 5 2 5.639 17 0 6.458 5 1 3.865 16 1 6 1 1 10.154 18 1 9.603 5 3 6.738 17 1 7.869 5 2 4.913 16 2 7 4.605 18 2 10.860 5 4 7.793 17 2 9.003 5 3 5.938 17 0 5 4.505 19 0 2.898 6 0 3.398 18 1 8.143 5 5 7.894 18 1 7 0 5 8.757 20 0 8.586 6 1 4.755 19 0 7.079 6 0 2.878 17 0 5 9.944 20 1 10.173 6 2 5.961 19 1 8.418 6 1 4.134 19 0 6 6 4.864 21 0 8.874 6 3 7.000 20 0 7.369 6 2 5.173 19 1 7 7 92 22 0 9.162 6 5 9.075 21 0 8.628 6 3 6.197 20 0 6 6 5 8.175 21 0 7.92 22 0 9.162 6 5 9.075 21 0 8.906 6 5 8.175 21 0 7.92 22 0 9.465 7 1 5.035 22 0 7.932 7 0 3.168 21 1 8.906 6 5 8.175 21 1 8.606 23 0 8.213 7 1 4.403 22 0 7 6.05 6 6 5 8.175 21 1 8.05 6 6 7.935 7 1 4.403 22 0 7 6.05 6 6 7 8.403 22 0 7.932 8 0.058 25 0 10.036 7 3 7.262 24 0 8.495 7 7 3 6.559 24 0 7.930 8 0.68 26 0 10.325 7 4 8.312 25 0 9.058 7 4 7.478 25 0 8		M	8.489	-	7	=	•	ιń	-	•	9	N	8.729	ī	0	2.625	16	0	5.658
5 10.754         18 1 9.603         5 3 6.738         17 1 7.869         5 2 4.913         16 2 7           6 4.605         18 2 10.860         5 4 7.793         17 2 9.003         5 3 5.938         17 0 5           1 6.182         19 0 8.298         5 5 8.815         18 0 6.798         5 4 6.928         17 1 7           2 7.507         19 1 9.888         6 0 3.398         18 1 8.143         5 5 7.894         18 0 6.798           3 8.757         20 0 8.586         6 1 4.755         19 0 7.079         6 1 4.134         19 1 7 1 7           4 9.944         21 0 10.173         6 2 5.961         19 1 8.628         6 2 5.173         19 1 7           1 6.459         21 1 10.458         6 4 8.052         20 1 8.628         6 3 6.197         20 0 6           2 7.792         22 0 9.162         6 5 9.075         21 0 7.650         6 4 7.215         20 1 7           3 9.036         22 1 10.743         7 1 5.035         22 0 7.932         7 0 3.168         21 1 8.906           4 10.217         23 0 9.450         7 1 5.035         22 0 7.932         7 1 4.403         22 0 7           5 133         24 0 9.738         7 2 6.166         23 0 9.213         7 1 4.403         23 0 7           6 0 9.358         7 0 9.758	10.754         18         1         9.603         5         3         6.738         17         1         7.869         5         2         4.913         16         2           4.605         18         2         17         2         9.003         5         3         5.938         17         0           6.182         19         6         2.903         5         3         5.938         17         0         5           7.507         19         1         8.134         16         6         2.838         17         1         7.894         18         1         7.894         18         0         7.894         18         0         7.894         18         0         7.894         18         0         7.894         18         0         7.894         18         0         7.894         18         0         7.894         18         0         7.894         18         0         2.894         18         0         2.894         18         0         2.894         18         0         2.894         18         0         0         2.894         18         0         2.894         18         0         2.894         18		4	9.672	7	0	-	•	w	61	5.639	1	0	6.458	r.	-	3.865	16	<del>-</del> -	6.895
0         4.605         18         2         10.860         5         4         7.793         17         2         9.003         5         5.938         17         0         5.938         17         0         5.938         17         1         7         0         5         5         8.815         18         0         6.798         5         5         7.894         18         1         7         1         7         1         7         1         7         1         7         1         7         1         7         1         7         1         7         1         7         1         7         1         7         1         7         1         7         1         7         1         7         1         7         1         7         1         7         1         7         1         7         1         7         1         7         1         7         1         7         1         7         1         7         1         1         7         1         7         1         7         1         1         7         1         1         7         1         1         7         1 <td< td=""><td>4.605         18         2         10.860         5         4         7.793         17         2         9.003         5         3         5.938         17         0         5.938         17         0         7.798         17         1         0         6.798         5         4         6.928         17         1         7         1         7         1         7         1         7         1         7         1         7         1         7         1         7         8         1         7         0         5         4         6.928         17         1         7         1         7         1         7         1         7         9         4         6.928         1         7         9         4         6.928         1         7         7         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9</td><td></td><td>N)</td><td>10.754</td><td>₹.</td><td>-</td><td><b>J</b>.</td><td>•</td><td>Ŋ</td><td>m</td><td>6.738</td><td>17</td><td>-</td><td>7.869</td><td>Ŋ</td><td>N</td><td>4.913</td><td>16</td><td>N</td><td></td></td<>	4.605         18         2         10.860         5         4         7.793         17         2         9.003         5         3         5.938         17         0         5.938         17         0         7.798         17         1         0         6.798         5         4         6.928         17         1         7         1         7         1         7         1         7         1         7         1         7         1         7         1         7         8         1         7         0         5         4         6.928         17         1         7         1         7         1         7         1         7         9         4         6.928         1         7         9         4         6.928         1         7         7         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9		N)	10.754	₹.	-	<b>J</b> .	•	Ŋ	m	6.738	17	-	7.869	Ŋ	N	4.913	16	N	
1         6.162         19         0         8.298         5         6.815         18         0         6.798         5         4         6.928         17         1         7.868         6         0         3.398         18         1         8.143         5         5         7.894         18         0         6         6         7.894         18         0         6         6         7.894         18         0         6         6         7.894         18         0         6         6         7.894         18         0         6         6         7.894         18         0         6         6         7.894         18         0         6         6         7.894         18         0         6         6         7.894         18         0         6         6         7.894         18         0         6         6         7.894         18         0         6         6         7.894         18         0         6         6         7.894         18         0         6         6         7.894         18         0         6         7.894         18         0         6         7.894         18         0         6	6.182 19 0 8.298 5 6 8.815 18 0 6.798 5 6 6.928 17 1 7 1 7 1 7 1 5 1 1 1 1 1 1 1 1 1 1	_	0	4.605	1	3	=		Ŋ	ţ	7.793	17	ભ	9.003	Ŋ	м	5.938	17	0	5.937
2         7.507         19         1         9.888         6         0         3.398         18         1         8.143         5         5         7.894         18         0         7.079         6         0         2.878         18         1         7         7         6         0         2.878         18         1         7         7         6         0         2.878         18         1         7         7         6         0         2.878         18         1         7         7         6         0         2.878         18         1         7         7         9         6         1         4.134         19         0         6         0         2.878         18         1         7         7         9         6         0         2.878         1         7         9         6         0         2.878         1         7         7         1         9         9         6         0         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9	7.507         19         1         9.886         6         0         3.398         18         1         8.143         5         7.894         18         0         7.079         6         0         2.878         18         1         7.994         18         0         7.079         6         0         2.878         18         1         7.994         18         1         7.894         18         1         7.894         18         1         7.894         18         1         7.894         18         1         7.894         18         1         7.894         18         1         7.896         18         1         7.896         18         1         7.896         1         7.896         1         7.896         1         7.896         1         7.896         1         7.896         1         7.896         1         7.896         1         7.896         1         7.896         1         7.896         1         7.896         1         7.896         1         7.896         1         7.896         1         7.896         1         7.896         1         7.896         1         7.896         1         7.896         1         7.896         2.1 </td <td>_</td> <td>-</td> <td>6.182</td> <td>5</td> <td>0</td> <td>-</td> <td></td> <td>Ŋ</td> <td>'n</td> <td>8.815</td> <td>8</td> <td>0</td> <td>6.798</td> <td>Ŋ</td> <td>4</td> <td>6.928</td> <td>17</td> <td><del>-</del></td> <td>7.167</td>	_	-	6.182	5	0	-		Ŋ	'n	8.815	8	0	6.798	Ŋ	4	6.928	17	<del>-</del>	7.167
3         8.757         20         0         8.586         6         1         4.755         19         0         7.079         6         0         2.878         18         1         7.000         6         2         5.961         19         1         6.418         6         1         4.134         19         0         6         6         1         4.134         19         0         6         6         1         4.134         19         0         6         6         1         4.134         19         0         6         6         1         4.134         19         0         6         6         5.173         19         1         7         7         1         6         2         5.173         19         1         7         7         7         1         7         1         7         1         7         1         7         1         7         1         7         1         7         1         7         1         7         1         7         2         1         1         7         1         1         7         1         1         7         2         1         1         7         1	8.757     20     0     8.586     6     1     4.755     19     0     7.079     6     0     2.878     18     1     7.09       9.944     20     1     10.173     6     2     5.961     19     1     8.418     6     1     4.134     19     0     6       4.459     21     0     8.874     6     3     7.000     20     0     7.369     6     2     5.173     19     1     7       4.459     21     0     7.369     6     2     5.173     19     1     7       7.792     22     0     9.162     6     5     9.075     21     0     7.260     6     4     7.215     20     0     6       7.792     22     0     9.162     2     9.075     21     0     7.650     6     5     6.175     20     1     7       9.036     25     1     10.743     7     1     5.035     22     0     7.932     7     0     3.168     21     1     8       6.738     25     0     9.450     7     2     6.166     25     0     7.932     7     4.403 <td></td> <td>ď</td> <td>7.507</td> <td>5</td> <td>-</td> <td>•</td> <td>•</td> <td>9</td> <td>0</td> <td>3.398</td> <td>\$</td> <td>-</td> <td>8.143</td> <td>Ŋ</td> <td>ĸ</td> <td>7.894</td> <td>18</td> <td>0</td> <td></td>		ď	7.507	5	-	•	•	9	0	3.398	\$	-	8.143	Ŋ	ĸ	7.894	18	0	
4         9.944         20         1         10.173         6         2         5.961         19         1         8.418         6         1         4.134         19         0         6         2         5.173         19         1         7         0         4.864         21         1         0.458         6         4         8.052         20         1         8.628         6         3         6.197         20         0         6         5         1         7         2         6         1         8.652         20         1         8         1         7         1         9         1         7         1         1         7         1         9         1         7         1         7         1         7         1         7         1         7         1         7         1         8         1         7         1         8         1         7         1         8         1         1         7         1         8         1         8         1         1         9         1         1         1         9         1         1         1         1         1         1         1         1	9.944       20       1       10.173       6       2       5.961       19       1       8.418       6       1       4.134       19       0       6       6       2       5.173       19       1       7         4.864       21       0       8.874       6       3       7.000       20       0       7.369       6       2       5.173       19       1       7         6.459       21       1       8.628       6       3       6.197       20       0       6       7       20       0       6       7       20       0       6       7       20       0       6       7       20       0       6       6       3       6.197       20       0       6       6       3       6.197       20       0       6       6       3       6.197       20       0       6       7       20       0       6       6       3       6.197       20       0       7       1       7       1       7       1       7       1       8       1       1       8       9.06       6       5       6.155       20       1       7       1		m	8.757	2	0	-	•	9	-		19	0	7.079	9	0	2.878	9	-	
0         4.864         21         0         8.874         6         3         7.000         20         0         7.369         6         2         5.173         19         1         7.000         20         0         7.369         6         2         5.173         19         1         7.000         20         0         7.369         6         2         5.173         19         1         7.000         2         6         19         7         7         0         6         6         3         6.197         2         0         6         6         19         7         2         0         6         6         3         6.197         2         0         0         6         6         3         6.197         2         0         0         6         6         5         19         1         7         7         7         0         0         6         6         6         9         19         0         1         7         1         8         1         7         1         8         1         1         9         1         1         1         9         1         1         1         9         1	4.864       21       0       8.874       6       3       7.000       20       0       7.369       6       2       5.173       19       1       7.792         6.459       21       10.458       6       4       8.052       20       1       8.628       6       3       6.197       20       0       6.797       20       0       6.797       20       0       6.797       20       0       6.797       20       0       6.797       20       0       6.797       20       0       6.797       20       0       6.797       20       0       6.797       20       0       6.797       20       0       6.797       20       0       6.797       20       0       6.797       20       0       6.797       20       0       6.797       20       0       7.793       20       0       7.793       20       0       7.793       20       0       7.793       20       7.798       20       0       7.793       20       0       7.793       20       0       7.793       20       0       7.793       20       0       7.793       20       0       0       0       0       0		Ŧ	9.944	20	-	=		9	ພ	5.961	13	_	8.418	9	<b>-</b>	4.134	6	0	
1         6.459         21         1         10.458         6         4         8.052         20         1         8.628         6         3         6.197         20         0         6.759         2         0         7.215         20         0         6         7         7.215         20         1         7         7         1         7         1         8.906         6         4         7.215         20         1         7         7         1         7         1         8.906         6         5         8.175         21         1         7         1         7         1         7         1         8.175         21         1         7         7         1         7         1         8         1         7         8         9.403         22         1         7         9         9         9         7         1         4         4         4         4         4         4         4         4         4         4         4         4         4         4         4         4         4         4         4         4         4         4         4         4         4         4         4	6.459 21 1 10.458 6 4 8.052 20 1 8.628 6 3 6.197 20 0 6. 7.792 22 0 9.162 6 5 9.075 21 0 7.650 6 4 7.215 20 1 7. 9.036 22 1 10.743 7 0 3.665 21 1 8.906 6 5 8.175 21 0 7. 10.217 23 0 9.450 7 1 5.035 22 0 7.932 7 0 3.168 21 1 8. 5.133 24 0 9.738 7 2 6.166 23 0 8.213 7 1 4.403 22 0 7. 6.738 25 0 10.036 7 3 7.262 24 0 8.495 7 2 5.434 23 0 7. 8.068 26 0 10.325 7 4 8.312 25 0 8.777 7 3 6.559 24 0 7. 9.307 27 0 10.613 8 0 3.936 26 0 9.058 7 4 7.478 25 0 8.		0	4.864	2	0	~		•	M	7.000	20	0	7.369	•	N	5.173	6	-	
2     7.792     22     0     9.162     6     5     9.075     21     0     7.650     6     4     7.215     20     1     7       3     9.036     22     1     10.743     7     0     3.665     21     1     8.906     6     5     8.175     21     0     7       4     10.217     23     0     9.450     7     1     5.035     22     0     7     1     8.168     21     1     8       0     5.133     24     0     9.213     7     1     4.403     22     0     7       1     6.736     25     0     8.245     7     1     4.403     22     0     7       2     6.736     26     0     8.495     7     2     5.444     23     0     7       2     8.068     26     0     10.325     7     4     8.312     25     0     8.593     7     4     7.478     25     0       3     9.307     27     0     10.613     8     0     3.936     26     0     9.058     7     4     7.478     25     0     8.578	7.792     22     0     9.162     6     5     9.075     21     0     7.650     6     4     7.215     20     1     7       9.036     22     1     10.743     7     0     3.665     21     1     8.906     6     5     8.175     21     0     7       10.217     23     0     9.450     7     1     5.035     22     0     7.932     7     0     3.168     21     1     8.0       5.133     24     0     9.738     7     2     6.166     23     0     8.213     7     1     4.403     22     0     7       6.736     25     0     10.036     7     3     7     2     5.434     23     0     7       8.068     26     0     10.325     7     4     8.312     25     0     9.058     7     4     7.478     25     0       9.307     27     2     0     9.058     7     4     7.478     25     0     8		-	6.459	2	_	Ξ		9	4		50	-	8.628	•	m	6.197	20	0	
3     9.036     22     1     10.743     7     0     3.665     21     1     8.906     6     5     6.175     21     0     7       4     10.217     23     0     9.450     7     1     5.035     22     0     7.932     7     0     3.168     21     1     8.0       0     5.133     24     0     9.213     7     1     4.403     22     0     7       1     6.736     25     0     10.603     7     2     6.459     23     0     7     7     2     5.434     23     0     7       2     8.068     26     0     10.603     7     4     8.312     25     0     9.058     7     4     7.478     25     0       3     9.307     27     0     10.613     8     0     3.936     26     0     9.058     7     4     7.478     25     0	9.036 22 1 10.743 7 0 3.665 21 1 8.906 6 5 8.175 21 0 7.10.217 23 0 9.450 7 1 5.035 22 0 7.932 7 0 3.168 21 1 8.5.133 24 0 9.738 7 2 6.166 23 0 8.213 7 1 4.403 22 0 7.66.738 25 0 10.036 7 3 7.262 24 0 8.495 7 2 5.434 23 0 7.66.738 26 0 10.325 7 4 8.312 25 0 8.777 7 3 6.559 24 0 7.9.307 27 0 10.613 8 0 3.936 26 0 9.058 7 4 7.478 25 0 8.		~	7.792	22	0			9	Ŋ		21	0	7.650	•	4	7.215	20	-	•
4 10.217     23 0     9.450     7 1     5.035     22 0     7.932     7 0     3.168     21 1     8.00       0 5.133     24 0     9.738     7 2     6.166     23 0     8.213     7 1     4.403     22 0     7       1 6.738     25 0     10.036     7 3     7.262     24 0     8.495     7 2     5.434     23 0     7       2 8.068     26 0     10.325     7 4 8.312     25 0     8.377     7 3 6.559     24 0     7       3 9.307     27 0     10.613     8 0     3.936     26 0     9.058     7 4 7.478     25 0     8.0	10.217 23 0 9.450 7 1 5.035 22 0 7.932 7 0 3.168 21 1 8. 5.133 24 0 9.738 7 2 6.166 23 0 8.213 7 1 4.403 22 0 7. 6.738 25 0 10.036 7 3 7.262 24 0 8.495 7 2 5.434 23 0 7. 8.068 26 0 10.325 7 4 8.312 25 0 8.777 7 3 6.559 24 0 7. 9.307 27 0 10.613 8 0 3.936 26 0 9.058 7 4 7.478 25 0 8.		m	9.036	22	_	=	•	7	0	3,665	21	- -	8.906	9	រេ	8.175	21	0	.05
0 5.133 24 0 9.738 7 2 6.166 23 0 8.213 7 1 4.403 22 0 7. 1 6.738 25 0 10.036 7 3 7.262 24 0 8.495 7 2 5.434 23 0 7. 2 8.068 26 0 10.325 7 4 8.312 25 0 8.777 7 3 6.559 24 0 7. 3 9.307 27 0 10.613 8 0 3.936 26 0 9.058 7 4 7.478 25 0 8.	5.133     24     0     9.736     7     2     6.166     23     0     8.213     7     1     4,403     22     0     7       6.738     25     0     10.036     7     3     7.262     24     0     8,495     7     2     5,434     23     0     7       8.068     26     0     10.325     7     4     8.312     25     0     8.777     7     3     6.559     24     0     7       9.307     27     0     10.613     8     0     3.936     26     0     9.058     7     4     7.478     25     0     8	~	4	10.217	23	0	<u>.</u>	4	7	-	5.035	25	0	7.932	_	0	3,168	21	-	•
1 6.738 25 0 10.036 7 3 7.262 24 0 8.495 7 2 5.434 23 0 7. 2 8.068 26 0 10.325 7 4 8.312 25 0 8.777 7 3 6.559 24 0 7. 3 9.307 27 0 10.613 8 0 3.936 26 0 9.058 7 4 7.478 25 0 8.	6.738 25 0 10.036 7 3 7.262 24 0 8.495 7 2 5.434 23 0 7.8068 26 0 10.325 7 4 8.312 25 0 8.777 7 3 6.559 24 0 7.9.307 27 0 10.613 8 0 3.936 26 0 9.058 7 4 7.478 25 0 8.		0	5,133	24	0	<b>J</b> .	۲.	7	¢,		23	0	8.213	^	-	4.403	22	0	
2 8.068 26 0 10.325 7 4 8.312 25 0 8.777 7 3 6.559 24 0 7.9 3 9.307 27 0 10.613 8 0 3.936 26 0 9.058 7 4 7.478 25 0 8.2	8.068 26 0 10.325 7 4 8.312 25 0 8.777 7 3 6.559 24 0 7.9 9.307 27 0 10.613 8 0 3.936 26 0 9.058 7 4 7.478 25 0 8.2	_	-	6.738	25	0	=	٥.	^	M	7.262	54	0	8.495	7	ď	5,434	23	0	
3 9.307 27 0 10.613 8 0 3.936 26 0 9.058 7 4 7.478 25 0 8.2	9.307 27 0 10.613 8 0 3.936 26 0 9.058 7 4 7.478 25 0 8.2	_	N	8.068	56	0	=	ņ	1	4	3	25	0	8.777	^	М	6.559	24	0	٥.
		_	M	9.307	27	0	=	9	00	0		56	0	9.058	7	4	7.478	, K	C	٥.

Table 1. (Continued)

\$.224 \$.224 \$.647 \$.388														
3.224 4.647 5.884 7.032	1 ×2	t(x1,x2)	×	X X	t(x1,x2)	×	×	t(x1,x2)	×	×	t(x1,x2)	×	8	t(x1,x2
3.224 4.647 5.884 7.032		] 	<u>'</u>		)               			* * * * * * * * * * * * * * * * * * * *	1					
4.647 5.884 7.032	7	7.907	0	0	2.097	7	-	5.319	0	0	1.612	•	Ŋ	8.102
5.884 7.032	7 1	5 9.143	0	-	3.321	~	N	6.465	0	_	2.723	7	0	3.581
7.032	7	10.206	0	N	4.407	~	m	7.427	0	Ň	3.726	7	_	4.761
124	7	11.097	0	m	5.428	~	4		0	м		7	~	5.773
671.0	8	•	0	4	6.407	7	īŲ		0	4	5.597	7	m	6.639
9.176	۰ ه		0	Ŋ		Ø	0	4.446	0	Ŋ	6.492	7	•	7.540
0.199	د. 8	•	0	•	8.290	0	_	5.751	0	9	7.373	^	Ŋ	8.260
1.200		•	0	7	9.204	80	N		0	~	•	80	0	3.929
3.315	8	10.545	-	0	2.189	80	m	7.667	-	0		60	_	5.101
4.741	6	•	-	-	3.416	0	4	8.620	-	_	2.818	60	a	6.109
5.979	6	•	-	N	4.504	•	0	4.801	<del>-</del>	~	•	60	m	6.965
7.128	6	8.607	-	m		0	-	900.9	-	m	•	۵	Ŧ	7.862
8.220	6	•	-	4	6.506	0	N	6.987	-	4	5.696	Φ	0	4.279
9.274	9		-	Ŋ	7.459	•	M	8.164	_	, LO	6.594	۰		5.284
10.298	0		-	9		0	•	8.953	-	9	•	ġ.	ผ	6.413
3.552	-		-	7	9.305	0	0	5.155	-	_	8.337	0	M	7.296
4.992	0		N	0	2.425	0	-	6.354	N	0	1.940	0	4	8.361
6.232	0	9.989	~	-	3.666	0	N	7.487	ķ	_	3.074	0	0	4.629
7.386	9	11.248	2	¢1	4.765	-	m	8.341	~1	2	4.096	0	_	5.625
8.484	-	6.637	∾.	m	5.798	10	4	9.284	~	m	5.060	0	N	6.745
9.543	-	•	N	4	6.785	=	0		~	4	5.932	5	m	7.612
10.573	-		N	Ŋ	7.695	=	-	669.9	~	ιΩ	6.830	2	4	8.508
3.840	-	10.332	~1	•	8.627	=	N		~	9	7.711	=	0	4.982
5.310	2	•	m	0	2.714	=	M	8.772	64	7	•	=	_	5.950
6.538	2	8.435	14)	-	•	12	0	5.865	m	ö	2.228	=	o.	7.076
7.699	2		m	N	5.082	72	-	7.108	m	-	3.384	=	m	•
8.804	2		m	m	9.044	12	~	7.999	m	N	•	=	4	8.672
9.870	m	7.367	M	4		12	m	9.104	PO	m	5.294	12	0	5.399
10.909	2		m	Ŋ	•	7	0	6.221	m	J	6.212	12	_	6.283
4.154	M		M	9	8.907	ħ	-	7.289	m	r,	7.111	2	ູ	7.407
5.663	M	11.018	J	0	3.027	<u>m</u>	N	8.502	m	ø	•	2	m	•
6.865	4	7.826	4	-	4.294	m	m	9.436	3	0	2.545	₩	0	5.739
8.028	4	9.133	4	N	5.412	4	0	6.577	4	-	3.710	<u>~</u>	_	6.617
9.042	5	10.438	4	M	6.341	*	-	7.629	<b>3</b>	~		£ :	N (	•
0	ığ.		4	4	7.322	<del>-</del>	~	8.841	<b>d</b>	m.	5.590	<b>*</b>		•
11.212	2	9.496	4	N.	8.275	2	0	6.934	•	<b>J</b>	6.517	<b>5</b>	_	6.951
4.483	N.		<b>J</b>	•	9.213	<u>ا</u> م	-	8.131	3	n ·	7.415	<b>†</b> !	N (	
6.024	9	8.547	10	0		2	N (		et i	φ,	8.425	5	٥,	6.446
7.214	9	9.850	r.	_		9	0	•	N.	0	2.892	15	_	•
8.371	9	11.131	'n	ณ	5.658	9	-	•	Ŋ	_	4.047	5	Q.	•
9.382	7	8.909	10	m	6.670	9	N	9.518	Ŋ	~	4.962	16	0	6.782
10.433	7	•	ī,	4		17	0		Ŋ	m	5.992	9	_	•
4.837	8	•	Ľ	IJ	8.728	17	-	8.652	S	4	6.838	16	ä	•
	8	10.557	9	0	3.742	5	0	8.008	Ŋ	Ŋ	7.787	17	0	7.118
.559	6	•	9	_		5	-		ιĠ	•	8.661	17	_	•
.712	6	10.911	•	cu		19	0	8.426	9	0	3.235	18	0	•
-714	0		•	m		6	-		9	_		18	_	8.296
10.763. 2	-	10.356	\$	4	4.969	20	0	8.770	9	۵	•	6	0	.79
.192	2		9	Ŋ		21	0	9.117	9	m	6.311	20	0	8.128
744		•	7	0		22	0	•	9	4		21	0	.46

Table 1. (Continued)

	- m	= 0.35		= eyd	0.01		- B	= 0.35	alpha	11	0.05		-	= 0.35	alpha	i ed	0.10	
×	×	t(x1,x2)	×	×2	t(x1,x2)	<u> </u>	×	t(x1,x2)	×	۶ X	t(×1,×2)	Σİ	×	t(x1,x2)	×	×	t(x1,x2)	
0	0	2.993	9	N	7.650	0	0	1.947	9	-	•	0	0	1.497	9	0	3.687	
0		4.315	ø	m	•	0	-	3.084	•	٥ų	6.211	0		2.528	•	-	4.547	
0	N	5.464	9	4	9.681	0	N	4.092	9	m	7.254	0	N,	3.460	Φ.	N 1	5.636	
0	M	6.529	•	រវា	10.649	0	M)	5.040	φ.	4	7.999	0.	M). •	4.343	φ.	m i	064.9	
0	4	7.543	ø	ø	11.583	0	4	5.950	•	'n	8.796	0	4	2.196	•	4	7.323	
0	Ŋ	8.520	^	0	5.763	0	ĽΩ,	6.834	7	0	4.614	0	Ŋ	6.028	9	Ŋ	•	
0	9	9.471	^	-	6.965	0	•	7.698	7		5.652	0	•	9.849	ø	9	8.949	
0	^	10.400	7	N	8.082	0	7	8.546	7	N	6.619	0	^	7.651	7	0	4.120	
0	0	11.312	7	М	9.102	0	Ø	9.383	7	m	7.653	0	Ø	8.447	7	•	4.947	
-	0	3.146	^	4	10.094	_	0	2.100	1	4	8.524	-	0	1.649	^	N	5.962	
<u>.</u>	-	4.478	7	Ŋ	11.059	-	-	3.243	7	w	9.190	-	-	2.690	7	m	946.9	
-	N	5.672	40	0	6.211	•	N	4.256	€0	0	5.055	-	N	3.626	7	4	7.761	
-	М	6.692	Ø		7.396	-	M	5.207	æ	-	5.902	-	M	4.513	7	Ŋ	8.333	
-	4	7.708	Ø	N	8.510	-	4	6.119	Φ	N	7.027	-	4	5.369	0	0	4.641	
-	rv	8.687	Φ	М	9.520	-	Ŋ	7.005	ø	m	7.838	-	'n	6.204	40	-	5.348	
-	9	9.639	۵	4	10.508	-	9	7.871	60	4	8.918	-	•	7.024	€0	N	6.343	
	7	10.569	۵	Ŋ	11.299	-	7	8.721	Ø	w	9.585	-	^	7.831	Ø	m	7.071	
-	ø	11.482	ď	0	6.659	-	0	9.559	0	0	5.497	-	œ	8.628	Ø	4	8.096	
~	0	3.485	6	-	7.828	c)	0	2.439	o	-	6.486	N	0	1.988	€0	Ŋ	8.718	
N	-	4.871	٥	N	8.937	N	-	3.587	0	N	7.435	~	-	3.035	٥	0	5.048	
N	N	5.971	σ	М	9.938	N	ď	4.603	0	m	8.221	~	ď	3.975	o	-	5.749	
N	м	7.043	6	4	10.923	67	M	5.557	0	4	9.321	N	M	4.865	6	8	6.749	
100	4	8.056	0	0	7.108	€4	4	6.471	0	0	690.9	. 64	4	5.724	0	M	7.462	
N	ស	9.037	0	-	8.260	N	77	7.359	-	-	6.793	61	ĸΛ	6.562	0	4	8.483	
2	•	066.6	0	N	9.345	N	•	8.123	0	N	8.058	67	9	7.383	5	0	5.454	
N	7	10.921	0	m	10.356	84	7	8.971	10	m	8.642	N	1	8.071	2	-	6.149	
m	0	3.881	0	4	11.470	'n	0	2.834	0	4	9: 708	~	Ø	8.991	9	~	7.210	
M	-	5.203	=	0	7.557	m		3.971	=	0	6.373	m	0	2,384	9	M	7.852	
M	٥J	6.361	Ξ	-	8.721	M	8	4.984	=	-	7.203	m	-	3.417	0	4	8.870	
m	m	7.440	=	N	9.768	m	M	5.818	=	cu	8.347	м	N	4.233	=	0	5.860	
M	4	8.439	=	M	10.774	m	4	6.724	=	m	9.037	m	m	5.111	=	-	6.548	
м	Ŋ	9.419	12	0	8.007	m	Ŋ	7.743	72	0	6.903	M	4	5.944	=	N	7.603	
m	9	10.373	7	-	9.151	m	•	8.608	5	-	7.612	m	īŪ	268.9	=	m	8.243	
м	1	11.179	72	N,	10.191	m	7	9.312	7	N	8.748	M	•	7.711	2	0	6.266	
4	0	4.304	2	M	11.191	4	0	3.301	22	m	9.437	M	^	8.412	~	-	6.924	
ţ	-	5.615	~	0	8.457	4	-	4.402	-	0	7.318	4	0	2.826	~	N	7.996	
4	N :	6.803	23	-	9.580	4	CJ	5.399	<u> </u>	-	7.960	ď.	- '	3.830	2	m,	8.633	
4	m	7.869	13	N	10.613	3	Μ,	6.342	2	N	9.150	<b>.</b>	N I	4.755	2	0	6.67	
4	t	8.859	4	0	8.909	4	4	7.140	<u> </u>	m	9.837	4	m	5.518	<u> </u>	-	7.344	
4	W.	9.834	4	-	10.008	4	D.	8.241	4	0	7.733	4	<b>.</b>	6.363	M.	<u>د</u> به	8.389	
4	9	10.783	<u> </u>	N	11.034	4	9	9.078	4	_	8.456	\$	Ŋ	7.187	<u> </u>	0	7.078	
Ω.	0	4.758	2	0	9.365	4	7	9.718	4	<b>N</b>	9.552	ď.	ø	8.192	<u>+</u>	-	7.736	
ល	-	6.103	5	-	10.437	'n	0	3.736	ī	0	8.147	4	^	8.802	4	es.	8.781	
Ŋ	N	7.226	-5	٥J	11.437	Ŋ	<b>-</b> -	4.817	5	<b>-</b> ,	8.863	Ŋ	0		5	0	7.480	
Ŋ	M	8.291	16	0	9.811	ιΩ	N	5.998	16	0	8.561	īŲ		4.362	īŲ	-	8.137	
Ŋ	4	9.267	16	-	10.864	ស	m	6.860	16	-	9.269	Ŋ	cu.		9	0	7.881	
Ŋ	Ŋ	10.239	17	0	10.258	ιΛ	4	7.528	12	0	•	IJ	m	٠	9	-	8.532	
īŪ	9	11.374	17	<b>-</b>	11.291	Ŋ	Ŋ	8.401	17	-	9.675	Ŋ	4	6.723	17	0	8.282	
9	0	5.313	9	0	10.703	ιŲ	9	9.460	9	0	9.385	ιņ	w	7.565	17	-	8.927	
•	-	6.533	6	0	11.146	9	0	4.174	6	0	9.795	Ľ	9	8.569	9	0	8.682	

Table 1. (Continued)

1, 12, 12, 13, 13, 13, 14, 14, 14, 12, 14, 14, 12, 14, 14, 12, 14, 14, 12, 14, 14, 12, 14, 14, 12, 14, 14, 12, 14, 14, 12, 14, 14, 12, 14, 14, 12, 14, 14, 12, 14, 12, 14, 12, 14, 12, 14, 12, 14, 12, 14, 12, 14, 12, 14, 12, 14, 12, 14, 12, 14, 12, 14, 12, 14, 12, 14, 12, 14, 12, 14, 12, 14, 12, 14, 12, 14, 12, 14, 12, 14, 12, 12, 12, 12, 12, 12, 12, 12, 12, 12		a1 = 0.4	d le	pha =	0.01	6		4.0	alpha		0.05	4	.81	0.4	alpha		0.10	
1         2.762         6         4.005         0         1.777         5         4.770         0         1.319         5         5         6.913         5         6.913         5         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913         6.913		t(x1,x2	_	X				t(x1,x2)			t(x1,x2)		۷. ×	t(x1,x2)	×	×		1,x2
2.6763         6.6769         0.6769         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779         0.6779<		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			1				1						1
1         5.0463         5         6.4562         5         6.7350         0         1.5344         5         6.0874         0         1.5370         0         1.5370         0         1.5370         0         1.5370         0         1.5470         0         1.5470         0         1.5470         0         1.5470         0         1.5470         0         1.5470         0         1.5470         0         1.5470         0         1.5470         0         1.5470         0         1.5470         0         1.5470         0         1.5470         0         1.5470         0         1.5470         0         1.5470         0         1.5470         0         1.5470         0         1.5470         0         1.5470         0         1.5470         0         1.5470         0         1.5470         0         1.5470         0         1.5470         0         1.5470         0         1.5470         0         1.5470         0         1.5470         0         1.5470         0         1.5470         0         1.5470         0         1.5470         0         1.5470         0         1.5470         0         1.5470         0         1.5470         0         1.5470         0<	0	•••		4	9.059	0	0	1.797	ıń	m	6.770	•	0	1.382	ΙĆ	М	•	053
2.0044         6         10.899         0         2.3778         5         6.373         0         2.3193         5         6.476         6         4.4656         5         6.491         0         4.4006         5         6.492         6         6.1379         0         4.4006         5         7         7         8         6.492         5         7         9.913         0         6         6.119         6         6.119         6         6.119         6         6.119         6         6.119         6         6.119         6         6.119         6         6.119         6         6.119         6         6.119         6         6.119         6         6.119         6         6.119         6         6.119         6         6.119         6         6.119         6         6.119         6         6.119         6         6.119         6         6.119         6         6.119         6         6.119         6         6.119         6         6.119         6         6.119         6         6.119         6         6.119         6         6.119         6         6.119         6         6.119         6         6.119         6         6.119         6	ö	.,	ľ	'n	•	0	-	2.846	'n	4	7.580	0	-	2.334	រោ	•	9	792
3         6.027         6         0.5402         5         9.153         6.013         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153         9.153	0		ī.	•		0	N	3.778	'n	Ŋ	6.373	0	N	3,193	I.S	,	7	349
4         6,653         6         1         6,749         0         4,796         0         4,796         0         4,796         0         6,737         0         6,736         0         6,736         0         0         6,136         0         0         6,136         0         0         6,136         0         0         6,136         0         0         6,136         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0	0	•	9	•		0	m	4.652	Ŋ	•	9.153	0	m	4.008	'n	•	ø	414
5         7,665         6         2         7,665         6         6,130         6         6,130         6         6,130         6         6,130         6         6,130         6         6,130         6         6,130         6         6,130         6         7,100         6         7,100         6         7,100         6         7,100         6         7,100         6         7,100         6         7,100         6         7,100         6         7,100         6         7,100         6         7,100         6         7,100         6         7,100         6         7,100         7,100         7,100         7,100         7,100         7,100         7,100         7,100         7,100         7,100         7,100         7,100         7,100         7,100         7,100         7,100         7,100         7,100         7,100         7,100         7,100         7,100         7,100         7,100         7,100         7,100         7,100         7,100         7,100         7,100         7,100         7,100         7,100         7,100         7,100         7,100         7,100         7,100         7,100         7,100         7,100         7,100         7,100         7,100         7,100 </td <td>0</td> <td>•</td> <td>9</td> <td>-</td> <td>•</td> <td>0</td> <td>4</td> <td>5.492</td> <td>Ŋ</td> <td>7</td> <td>9.913</td> <td>0</td> <td>4</td> <td>4.796</td> <td>'n</td> <td>7</td> <td>8</td> <td>821</td>	0	•	9	-	•	0	4	5.492	Ŋ	7	9.913	0	4	4.796	'n	7	8	821
6. 6.742         6. 5.119         6. 5.421         0. 6. 5.319         6. 5.421         0. 6. 5.319         6. 5. 5.21         0. 6. 5.319         6. 5. 5.21         0. 6. 5.319         6. 5. 5.21         0. 6. 5.319         6. 5. 5.21         0. 6. 5.319         6. 5. 5.21         0. 6. 5.319         6. 5. 5.21         0. 6. 5.319         6. 5. 5.21         0. 6. 5.319         6. 5. 5.21         0. 6. 5.319         6. 5. 5.21         0. 6. 5.319         6. 5. 5.21         0. 6. 5.319         6. 5. 5.21         0. 6. 5.519         6. 5. 5.519         0. 6. 5.519         6. 5. 5.519         0. 6. 5.519         0. 6. 5.519         0. 6. 5.519         0. 6. 5.519         0. 6. 5.519         0. 6. 5.519         0. 6. 5.519         0. 6. 5.519         0. 6. 5.519         0. 6. 5.519         0. 6. 5.519         0. 6. 5.519         0. 6. 5.519         0. 6. 5.519         0. 6. 5.519         0. 6. 5.519         0. 6. 5.519         0. 6. 5.519         0. 6. 5.519         0. 6. 5.519         0. 6. 5.519         0. 6. 5.519         0. 6. 5.519         0. 6. 5.519         0. 6. 5.519         0. 6. 5.519         0. 6. 5.519         0. 6. 5.519         0. 6. 5.519         0. 6. 5.519         0. 6. 5.519         0. 6. 5.519         0. 6. 5.519         0. 6. 5.519         0. 6. 5.519         0. 6. 5.519         0. 6. 5.519         0. 6. 5.519         0. 6. 5.519         0. 6. 5.519	0		9	٥	. •	0	ΙĠ	6.308	9	0	4.737	0	w	5.565	•	0	4	213
7. 9,600         6 4 9,783         0 7 7,889         6 2 6,421         0 7 7,703         6 5 10,527           9. 1,270         6 6 11,370         0 9 9,423         6 5 2 6,421         0 7 7,703         6 5 2 6,421         0 7 7,703         6 5 2 6,421         0 7 7,703         6 5 2 6,421         0 9 6,524         0 9 6,524         0 9 6,524         0 9 6,524         0 9 6,524         0 9 6,524         0 9 6,524         0 9 6,524         0 9 6,524         0 9 6,524         0 9 6,524         0 9 6,524         0 9 6,524         0 9 6,524         0 9 6,524         0 9 6,524         0 9 6,524         0 9 6,524         0 9 6,524         0 9 6,524         0 9 6,524         0 9 6,524         0 9 6,524         0 9 6,524         0 9 6,524         0 9 6,524         0 9 6,524         0 9 6,524         0 9 6,524         0 9 6,524         0 9 6,524         0 9 6,524         0 9 6,524         0 9 6,524         0 9 6,524         0 9 6,524         0 9 6,524         0 9 7,527         0 9 7,527         0 9 7,527         0 9 7,527         0 9 7,527         0 9 7,527         0 9 7,527         0 9 7,527         0 9 7,527         0 9 7,527         0 9 7,527         0 9 7,527         0 9 7,527         0 9 7,527         0 9 7,527         0 9 7,527         0 9 7,527         0 9 7,527         0 9 7,527         0 9 7,527         0 9 7,527 <t< td=""><td>0</td><td>~</td><td>9</td><td>m</td><td>8.651</td><td>0</td><td>9</td><td>7.114</td><td>•</td><td>_</td><td>5.576</td><td>0</td><td>9</td><td></td><td>•</td><td>-</td><td>4</td><td>951</td></t<>	0	~	9	m	8.651	0	9	7.114	•	_	5.576	0	9		•	-	4	951
9 11.270         6 5 10.521         0 8 6.661         6 7.741         0 9 7.797         6 4 40         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641         0 1.641	0	•	9	4	9.763	0	~	7.889	•	~		0	_		•		r	739
9. 10.270         6. 61.370         9. 94.22         6. 4 6.057         9. 6254         6. 6. 69.34         9. 6254         6. 6. 69.35         9. 6254         6. 6. 69.35         9. 6254         6. 6. 69.35         9. 6254         6. 6. 69.35         9. 6254         6. 6. 69.35         9. 6254         6. 6. 69.35         9. 6254         9. 6254         9. 6254         9. 6254         9. 6254         9. 6254         9. 6254         9. 6254         9. 6254         9. 6254         9. 6254         9. 6254         9. 6254         9. 6254         9. 6254         9. 6254         9. 6254         9. 6254         9. 6254         9. 6254         9. 6254         9. 6254         9. 6254         9. 6254         9. 6254         9. 6253         9. 6044         9. 6045         9. 6044         9. 6045         9. 6044         9. 6045         9. 6044         9. 6045         9. 6044         9. 6045         9. 6044         9. 6044         9. 6044         9. 6044         9. 6044         9. 6044         9. 6044         9. 6044         9. 6044         9. 6044         9. 6044         9. 6044         9. 6044         9. 6044         9. 6044         9. 6044         9. 6044         9. 6044         9. 6044         9. 6044         9. 6044         9. 6044         9. 6044         9. 6044         9. 6044         9. 6044	0	=	9	TU.	10.521	0	40	8.661	•	M			٠ «	7 707	) <b>, «</b>	: 1		10 K
1 4.272         7 1 6.442         1 0 2.057         6 5 0336         1 0 1.644         6 6.258         1 2.644         1 0 1.644         6 6.258         1 0 1.644         6 6.258         1 0 1.644         1 0 1.644         6 6.258         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644         1 0 1.644 </td <td>0</td> <td>=</td> <td>•</td> <td>40</td> <td></td> <td></td> <td>•</td> <td>9.423</td> <td>- <b>-</b>c</td> <td>•</td> <td>8.047</td> <td>• •</td> <td>0</td> <td>A 524</td> <td>•</td> <td>9</td> <td>, r</td> <td>26.0</td>	0	=	•	40			•	9.423	- <b>-</b> c	•	8.047	• •	0	A 524	•	9	, r	26.0
5.586         7.526         1.526         9.577         1.563         9.577         1.563         9.577         1.563         9.577         1.563         9.576         9.576         9.577         1.563         9.576         9.576         9.576         9.576         9.576         9.576         9.576         9.576         9.576         9.576         9.576         9.576         9.576         9.576         9.576         9.576         9.576         9.576         9.576         9.576         9.576         9.576         9.576         9.577         9.577         9.577         9.577         9.577         9.577         9.577         9.577         9.577         9.577         9.577         9.577         9.577         9.577         9.577         9.577         9.577         9.577         9.577         9.577         9.577         9.577         9.577         9.577         9.577         9.577         9.577         9.577         9.577         9.577         9.577         9.577         9.577         9.577         9.577         9.577         9.577         9.577         9.577         9.577         9.577         9.577         9.577         9.577         9.577         9.577         9.577         9.577         9.577         9.577 <td< td=""><td>-</td><td>•</td><td></td><td>•</td><td>•</td><td>·</td><td></td><td>2.057</td><td>•</td><td>٠ ٧</td><td>A. A. A.</td><td>-</td><td></td><td>1 644</td><td>• •</td><td></td><td>a</td><td>910</td></td<>	-	•		•	•	·		2.057	•	٠ ٧	A. A. A.	-		1 644	• •		a	910
2         5.368         7         2         6.456         1         2         4.103         7         0         5.259         1         2         5.416         7         1         6.699         1         4.102         7         1         6.699         1         4.102         7         1         6.699         1         4.102         7         1         6.699         1         4.102         7         1         6.699         1         4.102         7         7         2         6.699         1         4.102         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7 <t< td=""><td></td><td>• •</td><td></td><td>· <del>-</del></td><td>7.258</td><td></td><td>-</td><td>7.080</td><td><b>•</b></td><td>٠.</td><td>527</td><td></td><td><b>,</b> -</td><td></td><td>9 4</td><td>9 4</td><td></td><td>2 6</td></t<>		• •		· <del>-</del>	7.258		-	7.080	<b>•</b>	٠.	527		<b>,</b> -		9 4	9 4		2 6
9.6759         7.5         9.370         1.5         4.676         7.5         6.065         1.5         7.22         7.5         7.11         6.065         1.5         7.22         7.5         9.31         1.5         7.22         7.5         9.31         1.5         7.22         7.5         9.31         1.5         7.22         7.5         9.31         1.5         7.22         7.5         9.31         1.5         7.22         7.5         9.31         1.5         7.22         7.5         9.31         1.5         7.23         7.5         7.5         9.31         1.5         6.53         7.5         7.5         9.31         1.5         6.535         7.5         7.5         9.31         1.5         7.23         7.5         9.31         1.5         9.5         9.5         9.5         9.5         9.5         9.5         9.5         9.5         9.5         9.5         9.5         9.5         9.5         9.5         9.5         9.5         9.5         9.5         9.5         9.5         9.5         9.5         9.5         9.5         9.5         9.5         9.5         9.5         9.5         9.5         9.5         9.5         9.5         9.5         9.5		•		. ~	8.456		٠ ،	4.103	^	, c	7 250		۰ ۵	454	10	9 6		100
4         7.190         7         4         10.260         1         4         5.713         7         2         6.699         1         6.536         7         3         7.112         1         6.535         7         4         7.519         7         7         3         7         7         3         7.112         1         6.535         7         7         3         7         7         3         7.712         1         6.535         7         7         3         7         7         3         7         7         3         7         7         3         7         7         3         7         7         3         7         7         3         7         7         3         7         7         3         7         7         3         7         7         3         7         7         3         3         1         4         6         6.535         7         7         3         4         1         7         3         4         1         7         3         4         1         7         3         4         1         8         6.735         1         6.635         1         7         3 <td></td> <td></td> <td>. ^</td> <td>. M</td> <td>•</td> <td></td> <td>ı M</td> <td>4.876</td> <td>. ~</td> <td></td> <td>4.06F</td> <td></td> <td>. P</td> <td>4000</td> <td>- 1</td> <td>•</td> <td>ш</td> <td>200</td>			. ^	. M	•		ı M	4.876	. ~		4.06F		. P	4000	- 1	•	ш	200
6 0.00         7 5 11006         1 5 6.526         7 3 7.712         1 5 6.732         7 7 77           7 9.826         8 0.00         7 7 1100         1 5 6.526         7 3 7.712         1 5 6.737         7 7 7.712           8 0.00         7 0.00         1 1.401         8 0.00         7 7.712         7 5 7.712         1 5 6.737         7 7 7.717           9 11.491         8 2 0.00         1 1.401         8 0.00         1 1.401         8 0.00         1 1.401         8 0.00         1 1.401         8 0.00         1 1.401         9 0.00         1 1.401         9 0.00         1 1.401         9 0.00         1 1.401         9 0.00         1 1.401         9 0.00         1 1.401         9 0.00         1 1.401         9 0.00         1 1.401         9 0.00         1 1.401         9 0.00         1 1.401         9 0.00         1 1.401         9 0.00         1 1.401         9 0.00         1 1.401         9 0.00         1 1.401         9 0.00         1 1.401         9 0.00         1 1.401         9 0.00         1 1.401         9 0.00         1 1.401         9 0.00         1 1.401         9 0.00         1 1.401         9 0.00         1 1.401         9 0.00         1 1.401         9 0.00         1 1.401         9 0.00         1 1.401         9 0.00	-	,	. ^	4	10.260		4	5.713	. ^	٠ م	6.899	-	9	5.014		- •	i 4	466
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7         9,622         8         6,980         1         7         9,107         7         5         9,107         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7         7		,		i 4	11.704		٠.	7 426	٠,	ه د	A 524	-	n 4	5.70C		n <	ė r	707
1.641   6   2   6   6   6   6   6   6   6   6		, .	· d	•	•		) r	A +07	- ^	r u	20.0		9 1	7.000	- 1	* "	٠	0 40
9, 11, 991         6         2, 6, 94         6         1, 6, 97         1         9, 6, 94         6         1, 6, 97         1         0, 2, 59         6         1, 6, 57         1         0, 2, 59         6         1, 6, 57         1         0, 2, 59         6         1         0, 5, 57         1         0, 2, 13         0         2, 13, 13         0         2, 13, 18         0         2, 13, 18         0         2, 13, 18         0         2, 13, 18         0         2, 13, 18         0         2, 13, 18         0         2, 13, 18         0         2, 13, 18         0         2, 13, 18         0         2, 13, 18         0         2, 13, 18         0         2, 13, 18         0         2, 13, 18         0         2, 13, 18         0         2, 13, 18         0         2, 13, 18         0         2, 13, 18         0         2, 13, 18         0         2, 13, 18         0         2, 13, 18         0         2, 13, 18         0         2, 13, 18         0         2, 13, 18         0         2, 13, 18         0         2, 13, 18         0         2, 13, 18         0         2, 13, 18         0         2, 13, 18         0         2, 13, 18         0         2, 13, 18         0         2, 13, 18         0			o a	•	•	- •	٠ ۵	0.00	۰ ۵	<b>,</b>	7.30		- 0	77.7	٠ ،	h (	<b>.</b>	0
4,764         8         4,064         2         2,549         8         2,737         2         2,974         8         3,183         2         1,297         8         3,183         2         1,297         8         3,183         2         1,297         8         3,183         2         1,297         8         3,183         2         1,297         8         3,183         2         1,297         8         3,183         2         1,297         8         3,183         2         1,297         8         3,183         2         1,297         9         1,297         9         1,297         9         1,297         9         1,297         9         1,297         9         1,297         9         1,297         9         1,297         9         1,297         9         1,297         9         1,297         9         1,297         9         1,297         9         1,297         9         1,297         9         1,297         9         1,297         9         1,297         9         1,297         9         1,297         9         1,297         9         1,297         9         1,297         9         1,297         9         1,297         9         1,297 </td <td></td> <td>-</td> <td>o a</td> <td>- 0</td> <td>•</td> <td></td> <td>0 0</td> <td>0/0.0</td> <td>0 0</td> <td><b>.</b></td> <td>77.0</td> <td></td> <td>0 9</td> <td>0.01</td> <td>0 0</td> <td>•</td> <td>'n</td> <td>0 .</td>		-	o a	- 0	•		0 0	0/0.0	0 0	<b>.</b>	77.0		0 9	0.01	0 0	•	'n	0 .
5.643         8         5.643         8         4.615         8         4.615         8         4.626         8         4.626         8         4.626         8         4.626         8         4.626         8         4.626         8         4.626         8         4.626         8         4.626         8         4.626         8         4.626         8         4.626         8         4.626         8         4.626         8         4.626         8         4.626         8         4.626         8         4.626         8         4.626         8         6.175         9         1.627         9         1.627         9         1.627         9         1.626         9         1.627         9         1.626         9         1.626         9         1.626         9         1.626         9         1.626         9         1.626         9         1.626         9         1.626         9         1.626         9         1.626         9         1.626         9         1.626         9         1.626         9         1.626         9         1.626         9         1.626         9         1.626         9         1.626         9         1.626         9         1.626 </td <td>- 0</td> <td>- "</td> <td>9 0</td> <td>J F</td> <td>797.0</td> <td>- ‹</td> <td>٠.</td> <td>2.640</td> <td>0 4</td> <td>- •</td> <td>444</td> <td>- «</td> <td>٠.</td> <td>0.12</td> <td>0 4</td> <td>- 6</td> <td>ń .</td> <td>- 100</td>	- 0	- "	9 0	J F	797.0	- ‹	٠.	2.640	0 4	- •	444	- «	٠.	0.12	0 4	- 6	ń .	- 100
2         6.675         9         0         7.519         2         2         2.522         8         4.983         2         2         2.544         8         4.983         2         2         2.546         8         4.983         2         2         2.546         8         4.983         2         2         3.426         8         4.983         2         2         4.626         8         5.466         8         5.466         8         5.466         8         5.466         8         5.466         8         5.466         8         5.466         8         5.466         8         5.466         8         5.466         8         5.466         8         5.466         8         5.466         8         5.466         8         5.466         8         5.466         8         5.466         8         5.466         8         5.466         8         5.466         8         5.466         8         5.466         8         5.466         8         5.466         8         5.466         8         5.466         8         5.466         8         5.466         8         5.466         8         5.466         8         5.466         8         5.466	u e	'' \	0 0	n «	040.4	u c	-		0 0	y p	1.01	<b>u</b> «		2.133	0 6	4 1/	o r	200
4         7.604         9         1.1140         2         5.282         8         9.751         2         4.606         9         6.222         2         4.606         9         0         6.222         2         4.606         9         0         6.222         2         4.606         9         0         6.222         2         4.606         9         0         6.222         2         4.606         9         0         6.222         2         4.606         9         0         6.222         2         4.606         9         0         6.222         2         4.606         9         0         6.222         2         4.606         9         0         6.222         2         4.606         9         0         6.222         2         4.606         9         0         6.623         0         9         0         6.623         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0	u e		0 0	† U		v 6	- 0	0.00.0	0 0	<b>n</b> . <	0.00	<b>V</b> (	- 6	4.6.4	0 4	9 4	: 6	0 !
5         6.502         9         0.7217         2         5.202         9         7.721         9         7.721         9         7.721         9         7.721         9         7.721         9         7.722         9         7.722         9         7.722         9         7.722         9         7.722         9         7.722         9         7.722         9         7.722         9         7.722         9         7.722         9         7.722         9         7.722         9         7.722         9         7.722         9         7.722         9         7.722         9         7.722         9         7.722         9         7.722         9         7.723         9         7.723         9         7.723         9         7.723         9         7.723         9         7.723         9         7.723         9         7.723         9         7.723         9         7.723         9         7.723         9         7.723         9         7.723         9         7.723         9         7.723         9         7.723         9         7.723         9         7.723         9         7.723         9         7.723         9         7.723         9	<b>,</b>		0 0	n (	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	v	<b>,</b>	0.4.4	0 4	t i	6.705	<b>V</b>	<b>.</b>	5.618	0 (	* 1	0	40
4 0.004         9 1 0.137         2 6 0.138         9 1 0.145         2 6 0.138         9 1 0.145         9 1 0.145         2 6 0.138         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145         9 1 0.145	<b>V</b> (	٠,	•	•	7.6.7	N (	n .	292.4	<b>0</b> (	<b>A</b>	7.751	NI (	η,	4.626	<b>10</b>	a c	· i	702
6.702         9         2.745         2         5.745         9         1.745         2         5.745         9         1.745         2         5.745         9         1.745         2         5.745         9         1.745         2         5.745         9         1.756         9         2.745         9         1.756         9         2.745         9         1.756         9         9.127         9         9.127         9         9.127         9         9.127         9         9.127         9         9.127         9         9.127         9         9.127         9         9.127         9         9.127         9         9.127         9         9.127         9         9.127         9         9.127         9         9.127         9         9.127         9         9.127         9         9.127         9         9.127         9         9.127         9         9.127         9         9.127         9         9.127         9         9.127         9         9.127         9         9.127         9         9.127         9         9.127         9         9.127         9         9.127         9         9.127         9         9.127         9         9.127 </td <td>N (</td> <td>- (</td> <td>•</td> <td>- (</td> <td>8.517</td> <td>N (</td> <td><b>d</b> 1</td> <td>٠</td> <td><b>-</b> (</td> <td>ь.</td> <td>582.9</td> <td>N</td> <td><b>+</b> 1</td> <td>5.409</td> <td><b>D</b></td> <td>0</td> <td>, ,</td> <td>682</td>	N (	- (	•	- (	8.517	N (	<b>d</b> 1	٠	<b>-</b> (	ь.	582.9	N	<b>+</b> 1	5.409	<b>D</b>	0	, ,	682
0.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376         9.9.376 <t< td=""><td></td><td></td><td>•</td><td>N I</td><td>7.248</td><td>NJ (</td><td>ų ·</td><td>6.932</td><td><b>y</b>. (</td><td></td><td>7.037</td><td>NI (</td><td>ο.</td><td>6.175</td><td></td><td>peri (</td><td>ا ه</td><td>148</td></t<>			•	N I	7.248	NJ (	ų ·	6.932	<b>y</b> . (		7.037	NI (	ο.	6.175		peri (	ا ه	148
7 10.227         9 4 10.227         9 4 10.227         9 4 10.227         9 4 10.227         9 4 10.227         9 4 10.227         9 4 10.227         9 4 10.227         9 5 10.227         9 5 10.227         9 5 10.227         9 5 10.227         9 5 10.227         9 5 10.227         9 5 10.227         9 5 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.227         9 6 10.22	ν (	,	0. (	m ·	10.145	N	۱ ص	7.728	o (	N I	7.854	~ .	<b>.</b>	6.927	O 1	N 1	,	386
6 1.072         10 0 6.058         2 9 9.277         9 4 9.615         2 9 9.615         9 9 9.615         9 9 9.615         9 9.615         9 9 9.615         9 9 9.615         9 9.615         9 9.615         9 9 9.615         9 9.615         9 9 9.615         9 9.615         9 9.615         9 9 9.615         9 9.615         9 9 9.615         9 9 9.615         9 9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615         9 9.615	N (	= :	•	<b>.</b>	921.11	N (	~ (	8.502	•	m.	8.653	~	-	7.668	<b>D</b>	M ·		5/9
0         4.077         10         1         8.835         2         9         10.033         10         0         6.785         2         9         9.127         9         9.127         9         9         10         2         6.681         10         1         7.521         3         0         2.681         10         1         7.521         3         0         2.681         10         1         3         9.123         3         1         3.532         10         1         1         0         2.681         10         0         2.681         10         1         3         2.681         10         4         9.985         3         3         5.144         10         3         9.123         3         5.144         10         3         9.123         3         5.144         10         3         9.123         3         5.144         10         3         9.123         3         5.144         10         3         9.123         3         5.144         10         3         9.10         1         9.10         1         9.10         10         9.10         10         9.10         9.10         10         9.10         10         9.10 <td>N 1</td> <td>= '</td> <td>0 :</td> <td>0</td> <td>8.058</td> <td>N</td> <td><b>.</b></td> <td>9.272</td> <td>۰,</td> <td><b>.</b></td> <td>9.615</td> <td>N</td> <td>Ф (</td> <td>8.358</td> <td>0</td> <td><b>.</b></td> <td>0</td> <td>878</td>	N 1	= '	0 :	0	8.058	N	<b>.</b>	9.272	۰,	<b>.</b>	9.615	N	Ф (	8.358	0	<b>.</b>	0	878
1         5.169         10         2         9.986         3         0         3.158         10         1         7.521         3         0         2.681         10         0         2.681         10         0         2.681         10         0         2.681         10         0         2.681         10         0         2.681         10         0         2.681         10         0         2.681         10         0         2.681         10         0         2.681         10         0         2.681         10         0         2.681         10         0         2.681         10         0         2.681         10         0         2.681         10         0         2.681         10         0         2.681         10         0         2.681         10         0         2.681         10         0         2.681         10         0         2.681         10         0         2.681         10         0         2.681         10         0         2.681         10         0         2.681         10         0         2.681         10         0         2.681         11         0         2.681         0         2.641         10 <td< td=""><td>M i</td><td><b>v</b></td><td>2</td><td>-</td><td>8.835</td><td>SJ I</td><td>•</td><td>0.033</td><td>2</td><td>0</td><td>6.785</td><td>NJ I</td><td>0</td><td>9.127</td><td>•</td><td>Ŋ.</td><td>0.</td><td>153</td></td<>	M i	<b>v</b>	2	-	8.835	SJ I	•	0.033	2	0	6.785	NJ I	0	9.127	•	Ŋ.	0.	153
2         6.589         10         3 10.751         3 1 3.982         10         2         6.330         3 1 3.532         10         10         10         2         6.330         3 1 3.532         10         1         3         1         3.582         10         2         6.330         3 1 3.532         10         1         3         1         3.582         10         2         6.330         3 1 3.532         10         1         3         6.452         11         1         0         7.552         11         1         0         7.652         11         1         0         7.652         11         1         0         7.652         11         1         0         7.652         11         1         0         7.652         11         1         0         7.652         11         1         0         7.652         11         1         0         7.652         11         1         0         0.672         11         1         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0<	m I	.,	0	<b>N</b>	•	m i	٥.	•	<u> </u>	-	7.521	Mi i	0	2.681	2	0	•	282
3         7.287         10         4         11.784         3         2.631         10         3         9.123         3         2         4.552         10         2         9.085         3         3         5.144         10         3         9.123         3         2         4.552         10         2         9.085         3         5.144         10         3         9.123         3         5.144         10         3         9.123         3         4         5.917         11         0         9.128         3         4         6.597         11         1         0         0         11         2         0.086         3         6         0.022         3         5.672         11         1         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0	m I		0	M ·	•	M I		3.982	<u></u>	N 1	8.330	m i	-	3.532	2	- 1	9	615
4         8.193         11         0         6.596         3         5.831         10         4         9.985         3         3         5.144         10         3         5.144         10         3         5.917         11         0         3         5.917         11         0         3         5.917         11         0         3         5.917         11         0         7.283         3         5.917         11         0         7.785         11         2         6.602         3         5.917         11         11         0         7.485         11         11         2         6.672         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11         11	m i		-	4	•	M·I	N I	5.086	2	m	9.123	m	N	4.352	2	N		889
5         9.169         11         1         9.476         3         4         6.651         11         0         7.283         3         4         5.917         11         0           6         10.038         11         2         0.002         3         5         7.485         11         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         2         2         4         1         4	m		= :	0	•	m i	m ·	5.831	2	•	9.985	m	m.	5.144	2 :	M	60	3
6         10.038         11         2         10.370         3         5         7.452         11         1         8.002         3         5         6.672         11         1         8.002         3         5         6.672         11         1         8.002         3         5         6.672         11         1         8.002         3         5         6.672         11         1         8.002         3         5         6.672         11         1         8.002         3         5         6.672         11         1         8.002         3         5         6.674         1         1         7.485         1         2         8.685         4         0         3.679         12         1         8.482         4         0         3.679         12         1         8.482         4         0         3.679         12         1         9.966         4         1         4.581         12         2         9.524         4         1         4.581         12         2         9.524         4         1         4.581         12         2         9.524         4         1         9.596         12         3         9.666         4	m I		= :	-	9.476	m i	d I	6.651	= :	٥.	7.283	M	<b>3</b> 1		= :	۰ ۵	•	752
7         10.780         11         3         6         8.238         11         2         8.804         3         6         7.485         11         2         8.804         3         6         7.485         11         2         8.804         3         6         7.485         11         3         9.397         3         7         8.154         11         3         9.367         12         1         8.482         4         0         7.777         3         8         8.154         11         3         9.367         12         1         8.482         4         1         4.581         12         2         9.524         4         1         9.966         12         2         9.524         4         1         9.966         12         3         9.666         4         2         6.496         12         2         9.566         4         2         6.496         12         3         9.666         4         2         6.496         12         3         9.666         4         2         6.496         12         3         9.666         4         2         6.491         12         3         9.666         4         2         6.289	9	= :	= :	N I	10.3/0	M I	Δ,	7.452	= :	- (	8.005	• •	η.	2/0.0	= :	- 1	:	080
8 11.611         12 0         9.128         3 7 9.013         11 3 9.397         3 7 8.154         11 3 9.397           1 6.655         12 1         9.663         3 8 9.778         12 0         7.777         3 8 8.948         12 0         7.777         3 8 8.948         12 0         7.777         3 8 8.948         12 0         7.777         1 8.966         1 2 0         7.760         1 3.996         1 2 0         7.760         1 3 9.656         4 2 5.450         1 2 9.656         4 2 5.450         1 3 9.668         4 2 6.614         1 2 5.96         1 2 5.96         1 2 5.96         1 2 5.96         1 2 5.96         1 2 5.966         1 3 5.598         1 3 0 7.06         1 3 5.598         1 3 0 7.06         1 3 5.598         1 3 0 7.06         1 3 5.598         1 3 0 7.06         1 3 5.598         1 3 0 7.06         1 4 5 7.104         1 3 1 8.960         4 6 5.510         1 3 1 8.07         1 8 5.598         1 3 0 7.06         1 3 5.598         1 3 0 7.06         1 4 5 7.117         1 3 1 5 0 7.06         1 4 5 7.117         1 3 1 5 0 7.06         1 4 5 7.117         1 3 5 5 0 7.117         1 3 5 0 7.06         1 4 5 7.117         1 3 5 0 7.06         1 4 5 7.117         1 3 5 0 7.06         1 4 5 7.06         1 4 5 7.06         1 4 5 7.06         1 4 5 7.06         1 4 5 7.06         1 4 5 7.06         1 4 5	n i	= :	= :	9 (	11.248	ግ !	ا ه	•	= :	N I	8.80 <del>4</del>	<b>n</b> 1	ه ا	7.485	= :	N I	0	505
0     4.655     12     1     9.4643     3     9.778     12     1     8.948     12     0       1     5.687     12     2     10.686     4     0     3.679     12     1     8.948     1     1     1     1     1       2     6.909     12     2     9.686     4     2     4.814     12     2     9.868     4     2     4.814     12     2     9.868     4     2     4.814     12     2     9.868     4     2     4.814     12     2     9.868     4     2     4.814     12     3     9.868     4     2     4.814     12     3     9.868     4     2     4.814     12     3     9.868     4     2     4.814     12     3     9.868     4     2     4.814     12     3     9.868     4     2     4.814     12     3     9.868     4     4     5.598     13     0     7       5     9.539     13     0     9.269     13     0     9.267     4     4     7     9.869     4     4     7     11     9     9       6     10.397     4     5<	η,	= '	2 :	о.	9.128	ו חי	- •	•	= :	n (		n 1	-	8.154	= :	9 (	0 1	200
1. 5.687       12 2 10.868       4 0 3.679       12 1 8.482       4 0 3.197       12 1 8.482       4 1 3.996       12 2 8.594       4 1 3.996       12 2 8.594       4 2 4.814       12 2 9.524       4 1 3.996       12 2 8.594       4 2 4.814       12 2 8.594       4 2 4.814       12 2 8.594       4 3 6.289       13 0 8.267       4 3 5.598       13 0 7.894       13 0 8.267       4 5 5.598       13 0 7.895       13 0 7.895       14 0 8.267       4 6 5.510       13 1 8.966       14 0 8.267       4 6 5.510       13 1 8.966       14 0 8.765       4 6 5.510       13 1 8.966       14 0 8.765       4 6 5.510       13 1 8.966       14 0 8.765       14 0 8.765       14 0 8.765       14 0 8.765       14 0 8.765       14 0 8.765       14 0 8.765       14 0 8.765       14 0 8.765       14 0 8.765       14 0 8.765       14 0 8.765       14 0 8.765       14 0 8.765       14 0 8.765       14 0 8.765       14 0 8.765       14 0 8.765       14 0 8.765       14 0 8.765       14 0 8.765       14 0 8.765       15 0 8.776       15 0 8.776       15 0 9.835       5 1 4.478       15 1 8.965       15 0 9.833       5 2 5.276       16 0 9.833       5 2 5.276       16 0 9.833       15 0 9.833       15 0 9.833       15 0 9.833       15 0 9.832       16 0 9.833       16 0 9.833       16 0 9.833       16 0 9.833       16 0 9	<b>.</b>	3 1	12	- (	9.863	M) ·	<b>~</b>	•	2 :	٠.		<b>.</b>	<b>20</b> (	8.948	2 :	٠ -	3	9 9
2         6.909         12         3         11.634         4         1         4.581         12         2         9.524         4         1         3.996         12         2         9.524         4         1         3.996         12         2         9.524         4         1         3.996         12         2         9.524         4         1         3.996         12         3         9.686         4         6.814         12         3         9.868         4         6.814         12         3         9.598         13         0         7         7         9.539         13         0         7         9.598         13         0         7         9.609         14         10.959         4         6.509         4         6.509         4         6.509         4         6.755         4         6.7665         14         0         8.755         4         6.7665         14         0         8.593         14         1         8.593         14         1         8.593         14         1         9.529         4         6         7.865         14         0         8.593         14         1         9.593         14         1         9	<b>J</b>		12	2	10.868	<b>3</b>		•	2	_ (	8.482	٠ خ	۰ م	3.197	2	(	_	539
3     7,760     13     0     9,656     4     2     5,450     12     3     9,868     4     2     6,814     12     3     9,868       4     8,773     13     1     10,469     4     4     7,104     13     1     8,868     4     6,510     13     0       5     9,539     13     2     13     1     8,960     4     4     6,510     13     1     8,10       6     10,397     4     7     9,461     14     1     9,229     4     6     7,865     14     0     8,59       1     6,210     15     0     10,697     4     7     9,461     14     1     9,229     4     7     8,593     14     1     8,593       1     6,210     15     0     4,209     15     0     9,357     5     0     3,710     15     0       2     7,428     16     0     11,212     5     1     4,971     15     1     9,833     5     2     5,276     16     0     9,833     5     2     5,276     16     0     9,933	•		2 !	<b>1</b>	11.634	<b>.</b>	-,	•	2 9	NI I	9.524	<b>.</b>	- (	3.996	2	NI I	<b>20</b>	758
4     8.773     13     1     10.489     4     3     6.289     13     0     8.267     4     3     5.598     13     0     7       5     9.539     13     2     11     13     2     10     13     1     13     1     13     1     13     1     1     1       6     10.397     4     5     7.911     13     2     9     4     5     7.117     13     2     9       7     11.239     14     1     10     8.755     4     5     7.865     14     0     8.593     14     1     8.593     14     1     8.593     14     1     8.593     14     1     8.593     14     1     8.593     14     1     8.593     14     1     8.593     14     1     8.593     14     1     8.593     14     1     8.593     14     1     8.593     14     1     8.593     14     1     8.593     14     1     8.593     14     1     9.557     5     0     3.710     15     0     8.577     15     1     4.478     15     1     9.633     5     5.276     16 <td< td=""><td>đ,</td><td></td><td>E !</td><td>0</td><td>9.656</td><td><b>.</b></td><td><b>~</b> 1</td><td>•</td><td>2 !</td><td>m</td><td>9.868</td><td>4</td><td>N I</td><td>4.814</td><td>2 !</td><td>M (</td><td>0 1</td><td>245</td></td<>	đ,		E !	0	9.656	<b>.</b>	<b>~</b> 1	•	2 !	m	9.868	4	N I	4.814	2 !	M (	0 1	245
5     9.539     13     2     11.365     4     4     7.104     13     1     8.960     4     6.510     13     1     8.960       6     10.397     14     0     8.755     4     6     7.117     13     2     9       7     11.239     14     0     8.755     4     6     7.865     14     0     8.755     4     7     8.593     14     0     8.       0     5.225     15     1     9.259     4     7     8.593     14     1     8.593     14     1     8.593     14     1     8.593     14     1     8.593     14     1     8.593     14     1     8.593     14     1     8.593     14     1     8.593     14     1     8.593     14     1     8.593     14     1     8.593     14     1     8.593     14     1     8.593     14     1     8.593     14     1     8.593     14     1     8.593     14     1     8.593     14     1     8.593     14     1     8.593     14     1     8.593     14     1     8.593     14     1     8.593     14     1	t	ω.	13	-	٠	4	m		<u>~</u>	0	8.267	4	m :	5.598	<u>~</u>	0	7	701
6 10.397 14 0 10.178 4 5 7.911 13 2 10.059 4 5 7.117 13 2 7 11.239 14 1 10.992 4 6 6.694 14 0 8.755 4 6 7.865 14 0 5.325 15 0 10.697 4 7 9.461 14 1 0 9.357 5 0 3.710 15 0 6.210 15 1 11.497 5 0 4.209 15 0 9.357 5 0 3.710 15 0 2 7.428 16 0 11.212 5 1 4.971 15 1 9.703 5 1 4.478 15 1 3 8.277 17 0 11.724 5 2 5.942 16 0 9.833 5 2 5.276 16 0	ţ.		<u> </u>	N	٠	4	<b>.</b>	7.104	<u>~</u>	÷	8.960	•	d I	6.510	<u>~</u>	- 1	60	500
7 11.239 14 1 10.992 4 6 8.694 14 0 8.755 4 6 7.865 14 0 5.325 15 0 10.697 4 7 9.461 14 1 9.229 4 7 8.593 14 1 1 6.210 15 1 11.497 5 0 4.209 15 0 9.357 5 0 3.710 15 0 2 7.428 16 0 11.212 5 1 4.971 15 1 9.703 5 1 4.478 15 1 3 8.277 17 0 11.724 5 2 5.942 16 0 9.833 5 2 5.276 16 0	4	=	4	0	٠	4	rð.	7.911		NJ .	10.059	<b>.</b>	Ŋ.	7.117	<u>~</u>	N .		213
0 5.325 15 0 10.697 4 7 9.461 14 1 9.229 4 7 8.593 14 1 1 6.210 15 1 11.497 5 0 4.209 15 0 9.357 5 0 3.710 15 0 2 7.428 16 0 11.212 5 1 4.971 15 1 9.703 5 1 4.478 15 1 3 8.277 17 0 11.724 5 2 5.942 16 0 9.833 5 2 5.276 16 0	ţ	-	4	-	10.992	4	9	•	4	0	8.755	4	9	7.865	<b>*</b>	0	ø	163
1 6.210 15 1 11.497 5 0 4.209 15 0 9.357 5 0 3.710 15 0 8. 2 7.428 16 0 11.212 5 1 4.971 15 1 9.703 5 1 4.478 15 1 8. 3 8.277 17 0 11.724 5 2 5.942 16 0 9.833 5 2 5.276 16 0 9.	Ŋ	щ	15	0	10.697	4	~	9.461	4	_	9.229	\$	1	8.593	4	-	8	160
2 7.428 16 0 11.212 5 1 4.971 15 1 9.703 5 1 4.478 15 1 8. 3 8.277 17 0 11.724 5 2 5.942 16 0 9.833 5 2 5.276 16 0 9.	Ŋ	Ψ	5	-	11.497	N	0	4.209	15	0	9.357	ις)	0	3.710	5	0	ö	624
3 8.277 17 0 11.724 5 2 5.942 16 0 9.833 5 2 5.276 16 0 9.	ĽΛ	•	9	0	11.212	Ŋ	-	4.971	- 2	_	9.703	Ŋ	-	4.478	5	-	0	925
	Ŋ	w	4	0	11.724	ın	es.	5.942	9	0	9.833	ıń	N	5.276	9	0		984

Table 1. (Continued)

i	, ,	= 0.45	alpha	= eq	0.01		-a	= 0.45	alpha	ا ا	0.05		_	= 0.45	alt.	elpha	= 0.10	ı
×	×	t(x1,x2)	×	×	t(x1,x2)	×	×	t(x1,x2)	×	X	t(x1,x2)	×	×	t(x1,x2)	×	×	t(x1,x2)	. ~
						:		! 			1	3		1				,
0	0	2.533	4	1	10.825	0	0	•	4	•	8.441	0	0	1.266	4	9	7.795	
o 6	<b>-</b> c	3.651	<b>J</b> 1	Φ 4	11.574	0	<b>-</b> (	2.609	4	^	9.139	0	-		¢	7		
<b>,</b>	U H	4.063	<b>೧</b> ២	> •	2.644	5 6	N 1	•	of I	φ (	9.829	0	N)	5.964	*	0	9.116	
0	9	6.382	n in	- %	7.491		9	4.024	n u	<b>-</b>	4.809	0 0	m «	3.674	יט נ	۰ .	4.233	
0	Ŋ	7.217	Ľή	M	8.300	•	ro.	5.782	'n	۰ م	•	<b>,</b>	1 11	•	n u	- 0	4.540	
0	9	8.014	W	4	9.107	0	•	6.513	'n	'n	6.848	0	n •0	• •	ח ע	4 1	6 159	
0	7	8.800	'n	Ŋ	9.870	0	7		'n	4	7,591	Ó	<b>^</b>		) L	9	4.856	
0	0	9.571	SÚ)	9	10.634	0	0	. •	ΙŊ	Ŋ	•	0	0	7.147	, ru	ĽΩ	7.505	
0	6	10.331	ហ	~	11.387	0	6		Ŋ	9	•	0	٥	æ	Ŋ	9	8.173	
ь.	<u> </u>	11.092	<b>9</b>	0	6.557	0	2	•	Ŋ	۲	9.677	0	10	8.474	M	~	8.834	
۰ م	= 1	11.833	•	<b>-</b>	•	0	=		ø	0	5.397	0	=	•	•	0	4.791	
- 4	<b>.</b>	3.021	φ.	<b>ا</b> د		-	0	2.135	9	-	æ	-	0	1.750	9	-	5.198	
	- •	10.5	۰ م	9	8.894			3.011	•	N	6.692	_	-	2.528	9	N	6.010	
- +	u, h	5.020	۰ ،	<b>J</b> L	•	<u>-</u> ,	N I	3.839	•	m	•	_	N.	•	•	M	6.685	
	n 4	2.700	0 4	Λ ·	999.01	- •	M .	4.626	۰ م	<b>4</b> 1	8.141	_	m	•	9	4	7.385	
	<b>-</b> u	7 570	0 4	1 0	11.160	- •	<b>+</b> .i	5.391	۰ م	n.	8.672	_	4	4.742	•	Ŋ	8.027	
	) d	0,570	10	٠.	7 900		ń,	6.134	۰ ی	9 1	9.521	-	'n	•	ø	9	8.691	
	0 1	0.57	- 1	٠.	2 202		0 1	6.861	•	/	10.055	-	•	6.124	_	0	5.344	
	- 0	7.100	~ r	- 0	7.803	- •	٠,	7.569	_	0	5.977	-	1	6.802	7	<del>-</del>	5.703	
	0	10 495	- 1	<b>V</b> F	12/.0		<b>x</b> (		-	<u>.</u>	6.371	-	ø	7.472	^	ď	6.547	
	٠ -	61000	- ř	n <	. •	7		8.969	<u>, 1</u>	~	7.252		ó	8.136	1	ነሳ	7.055	
- 6	2 0	. H	- 1	tu	997.01	- «	2 9	9.659	<b>~</b> 1	m,	7.961	_	0	8.794	7	ţ	7.913	
<b>.</b> c		20103	- 1	٥,	0.0.	N 4	9	2.833	7	<b>.</b>	8.825	~	0	2.395	1	Ŋ	8.391	
		1.123 F 477	- 0	0 0	7.773	N, e	- •	•	7	Ŋ,	9.365	~	_	2.887	7	9	9.207	
		2002	0 0	۰ د	916.7	N (	N I		Φ	0	6.550	~	ر.	3.830	Φ	0	5.891	
u c		10.470	0 0	- (	6.410	2	m,	5.173	Φ.	-	6.974	N	m	4.346	Ø		6.279	
u c		- + 0	0	N I	•	ω (	<b>3</b>	•	0	N	7.809	N	4	5.260	Ø	64		
		077 0 074	0 0	n .	• .	N (	n,	٠	<b>60</b>	m ·	8.510	~		5.940	Φ	m	7.736	
٠,		0.7.0	0 a	t u	000.01	N (	0 1	7.372	<b>20</b> (	op 1	9.234	¢,	ý	6.622	Ø	4	•	
		10 676	0 0	n c	0.10.0	v (	٠ ،	•	Ф (	<b>1</b> 0	9.903	~	~	7.295	Ø	Ŋ	•	
. N	0	11.021	• •	<b>-</b>	0.500	v	0 0	0.507	> 0	۰ د	7.118	Ν.	60 (	7.961	0	0	6.432	
N		11.759	0		600	J 6	٠ :	276.0	٠.	- «	6.533	N (	٠,	8.622	Φ.	-	6.814	
м		4.520	0	ı M	10.672	. M	2 -		٥	Ú P	200.0	1 1/	2 6	7.277	0-1	N 1	7.611	
м		5.375	٥	4	11.443	M	· -	4.067	• •	ף ר	922.6	n r	-	7.03	• (	9 <	8.267	
m		6.247	0	0	9.137	m	N		0	0	7.680	M	- ~	124.4	• 5	t c	7.007	
m		7.334	0	<b>-</b>	209.6	m	m	5.724	0	_	8.087	) P1	1 14	5 0 74	2 5	> -	7 365	
m i		7.918	0	~	10.490	m	4	6.325	10	~	8.911	м	4	5.628	2 0	۰ م	0 2 4 4 6	
m 1		8.700	0	m	11.251	m	ro.	7.183	10	М	9.599	M	N	6.314	÷	ı M	8.789	
M 1		9.480	=	0	9.737	m	ġ		<u></u>	4	10.129	M	•	6.990	=	. 0	7.505	
n 1	٠,		-	-	10.197	'n	^	8.795	=	0	8.238	m	~		-	-	7.874	
η,	00		_	N	11.074	m	8	9.293	=		8.638	M	- 00	8.322	Ξ	٠ م	2,44	
•	٠.		= :	m	11.826	m	o.	10.174	=	ູ	9.457	m	٥		-	1 141	9.310	•
<b>,</b>	- (		2 :	0	10.331	4	0	4.211	12	0	8.791	4	0	•	2		8.036	
<b>.</b>	<b>4</b> <i>V</i>		2 9	- (	10.783	4	-		72	_		đ	_	4.099	2	<del>-</del>	8.407	
	o s	CO/./	2 !	N 6	11.654	4	~	•	12	Q.	•	4	٥	4.925	12	ς.	9,188	
	+ 4		2 :	٠.	10.921	<b>.</b>	m	6.478	ņ	0	9.341	4	m	5.788	73	0	8.564	
٠.	1.4		2 5	- 6	500.11	<b>.</b>	<b>3</b> 1		m.	_		¢	4	6.450	13	-	8.924	
	>		<u>*</u> .	>	11.500	<del>j</del>	Ų	•	<b>4</b>	0	9.887	4	: (2)		4	0	9.089	

A somewhat more complicated case making use of the possibility of combining component data when some sample sizes are equal, as described in Section 1, is illustrated by

Example 2. Consider a five-component series system with test data  $X_1 = 0$ ,  $X_2 = 4$ ,  $X_3 = 2$ ,  $X_4 = 1$ ,  $X_4 = 3$ , based on corresponding sample sizes  $n_1 = n_2 = n_3 = 300$ ,  $n_4 = n_5 = 200$ . Here c = (3/300 + 2/200) = .02,  $a_1 = a_2 = a_3 = 1/300(.02) = 1.6$ ,  $a_4 = a_5 = 1/200(.02) = 1/4$ . For the equivalent  $k^* = 2$  problem we divide the two distinct values of the  $a_1$ 's by their sum  $c_0 = 1/6 + 1/4 = 5/12$ , obtaining  $a_1^* = .40$ ,  $a_2^* = .60$ . The corresponding numbers of failures are  $X_1^* = X_1 + X_2 + X_3 = 6$  and  $X_2^* = X_4 + X_5 = 4$ . For the reduced problem we consult Table 1 for  $\alpha = .10$  to find the 90 percent confidence bound 7.564. This must be multiplied by  $c_0$  to obtain the bound for the original  $\theta(\lambda)$ . The 90 percent lower bound r(x) for the system reliability given by (1.6) thus becomes  $1 - cc_0 t(x) = 1 - (.02)(5/12)(7.564) = .937$ .

If the observed numbers of failures fall outside the limits of Table 1, the approximate methods discussed in the next section may be employed.

### 4. Approximations

In this section approximate confidence bounds for systems with more than two components having distinct sample sizes are developed. The use of the maximum likelihood ratio confidence bound for cases falling outside the scope of Table 1 is also discussed.

For k > 2 it is impractical to generate the optimal ordering and the corresponding values of the upper confidence bound for more than a few illustrative cases. Thus, some method of approximating solutions for k > 2 with acceptable precision is required. The approach to be followed here is to find a k = 2 problem which is sufficiently similar in structure to the given k > 2 problem so that the confidence bounds for the two problems are essentially the same except for a normalizing factor. This method may be thought of as an extension and refinement of the Lindstrom-Madden procedure (see Lloyd and Lipow 1977, and cf. Harris and Soms 1980).

The Lindstrom-Madden method first estimates the reliability by maximum likelihood and then uses the k=1 confidence bound solution for the component with the smallest sample size and a fictitious number of failures determined so as to reproduce the estimated system reliability. The procedure proposed here is to estimate  $\underline{two}$  quantities, the value of  $\theta$  and the variance of the maximum likelihood estimate of  $\theta$ , and to use these estimates to find a k=2 problem based on two of the original  $a_1$ 's with a pair of corresponding fictitious observation values chosen to reproduce the estimated quantities. The two  $a_1$ 's are chosen to be as large as possible (corresponding to sample sizes as small as possible) subject to two constraints. The

first constraint guarantees that the resulting fictitious observations are non-negative. The second constraint requires that  $a_i$ 's corresponding to zero failures in the original problem not be considered unless all but one of the components have zero failures. These considerations lead to a unique k=2 problem whose solution provides a very good approximation to the solution for the original k>2 problem.

The elimination of a_i's for components exhibiting zero failures is justified by the fact that the maximum likelihood ratio confidence bound (discussed later) is invariant under such transformations. That is, if the dimension k is reduced by the elimination of all a_i's corresponding to zero failures, then the value of the maximum likelihood ratio bound remains unchanged.

The choice of the two quantities whose estimates are used to determine the pair of fictitious observations is supported by analogy with Lindstrom-Madden (in the case of  $\theta$ ) and by the fact that the two estimates are the ingredients of the asymptotic maximum likelihood ratio confidence bound thereby insuring asymptotic optimality. The details of the approximation algorithm are as follows:

(a) First  $\theta(\lambda) = \sum_{i=1}^{k} a_i \lambda_i$  is estimated by

$$\hat{\theta} = \sum_{i=1}^{k} a_i X_i , \qquad (4.1)$$

and the quantity  $Var(\hat{\theta}) = \sum_{i=1}^{k} a_i^2 \lambda_i$  is estimated by

$$\hat{\mathbf{v}} = \sum_{i=1}^{k} \mathbf{a}_{i}^{2} \mathbf{x}_{i} . \tag{4.2}$$

- (b) Next if at least one component exhibits one or more failures, the pair (a_i,a_j), i < j, is selected so that</p>
  - (i)  $a_i \leq \hat{v}/\hat{\theta}$ , and
  - (ii)  $a_{j} \geq \hat{v}/\hat{\theta}$ .

Subject to these conditions,  $a_i$  and  $a_j$  are taken to be the largest available values associated with at least one failure. If all  $a_i$ 's satisfying (i) correspond to zero failures, then  $a_i$  is taken to be the largest in that group. If all the  $a_j$ 's satisfying (ii) correspond to zero failures, then  $a_j$  is taken to be  $a_k$ . If all components exhibit zero failures,  $\hat{v}/\hat{\theta}$  is indeterminate and  $a_i$  and  $a_j$  are taken to be  $a_1$  and  $a_k$  respectively.

(c) The pseudo-observations  $x_1^*$  and  $x_2^*$  are computed by the formulae

$$x_1^* = \frac{a_j \hat{\theta} - \hat{v}}{a_i (a_j - a_i)}$$
, (4.3)

$$x_2^* = \frac{\hat{v} - a_i \hat{\theta}}{a_j (a_j - a_i)}$$
.

These values will be non-negative by conditions (i) and (ii) of (b), and when associated with  $a_i$  and  $a_j$  respectively they

¹For this case the resulting confidence bound is exact and is the same as would be obtained by multiplying  $a_k$  times the upper confidence bound for a single Poisson parameter when zero failures are observed, i.e.,  $t(0) = a_k \log (1/\alpha)$ .

reproduce the values of  $\hat{\theta}$  and  $\hat{\mathbf{v}}$  provided all other observations are replaced by zeros.

- (d) The k = 2 problem with  $x_1^*$  and  $x_2^*$  associated with  $a_1^* = a_1/(a_1 + a_1)$  and  $a_2^* = a_1/(a_1 + a_1)$  respectively may now be treated using Table 1 to yield  $t(x_1^*, x_2^*)$ . Since  $x_1^*$  and  $x_2^*$  are not necessarily integers, it may be necessary to interpolate with respect to these arguments as well as the value of  $a_1 = a_1^*$ .
- (e) The approximate upper confidence bound  $t^*$  for  $\theta$  for the original k > 2 problem is then given by

$$t^*(x) = (a_1 + a_j)t(x_1^*, x_2^*)$$
 (4.4)

In order to check the validity of this approximation algorithm, the confidence bounds for the first 24 points in the optimal (two-stage prospective) ordering were computed for a typical k=3 case. These results were obtained by a rather laborious method based on formula (2.7) and involving repeated interactive searches of the  $(\lambda_1,\lambda_2,\lambda_3)$  simplex. The approximation algorithm was applied to each of these points and the comparative results are shown in Table 2. The values of  $a_1$ ,  $a_2$ , and  $a_3$  for this example were chosen to be of roughly the same magnitude but not so close that the combination of any two would be indicated.

To check the algorithm for cases farther from the origin several additional examples were considered using a somewhat different method which avoids the necessity for sequentially generating the

Table 2. The Performance of the Approximation Algorithm for the First 24 Ordered Points for a Typical Example With k=3.

Two-Step Prospective Sequential					Approximation Algorithm		
n	* ₁	* ₂	*3	t(x)	t*(x)	Relative Error	
1	0	0	0	1.498	1.498	+ 00.0 %	
2	1	0	0	1.553	1.555	+ 00.1	
3	0	1	0	1.656	1.663	+ 00.4	
4	2	0	0	1.703	1.705	+ 00.2	
5	1	1	0	1.756	1.540	-12.3	
6	2	1	0	1.861	1.752	- 05.9	
7	3	0	0	1.933	1.891	- 02.1	
8	0	2	0	1.981	1.995	+ 00.7	
9	1	2	0	2.085	2.052	- 01.6	
10	4	0	0	2.088	2.094	+ 00.3	
11	3	1	0	2.162	1.991	- 07.9	
12	2	2	0	2.268	2.208	-02.7	
13	5	0	0	2.300	2.309	+ 00.4	
14	0	3	0	2.354	2.397	+ 01.8	
15	0	0	1	2.372	2.372	+ 00.0	
16	4	1	0	2.382	2.291	- 03.9	
17	1	0	1	2.429	2.431	+ 00.1	
18	1 .	. 3	0	2.472	2.438	- 01.4	
19	5	1	0	2.504	2.486	- 00.7	
20	0	1	1	2.543	2.529	- 00.5	
21	6	0	0	2.575	2.551	- 01.0	
22	2	0	1	2.602	2.589	- 00.8	
23	2	3	0	2.609	2.641	+ 01.2	
24	1	1	1	2.660	2.668	+ 00.3	

optimal ordering of the sample points. For these examples the ordering was generated by the values of the maximum likelihood ratio confidence bounds (see below) associated with the sample points. Since this ordering is asymptotically optimal (for large  $\lambda_i$ 's), it can be expected to produce good results for sample points well removed from the origin. The values of the confidence bounds calculated using (2.7) and the approximations obtained by the proposed algorithm are shown for these examples in Table 3.

In Table 3 the tendency of the computed values of t(x) to be slightly larger than the algorithm values may be due to the fact that the ordering used to compute the former is non-optimal. Formal application of the algorithm may occasionally result in the selection of nearly equal values  $a_i$  and  $a_j$  in step (b). When this happens, improved results may be obtained by first reducing the dimension k by combining the nearly equal  $a_i$ 's and then applying the algorithm. This method was used for the two cases in Table 3 marked by (†). The algorithm values for all cases where a = (.14, .16, .70) or a = (.15, .41, .44) do not differ substantially from the values which would be obtained by reducing to the k = 2 case by combining the nearly equal  $a_i$ 's. Similarly, the values for the cases where a = (.32, .33, .35) can be nearly reproduced by multiplying the k = 1 bound by a = .333.

The number of sample points appearing in the ordering before a given level of t(x) is reached increases rapidly as k increases.

Table 3. Several Examples Comparing the Algorithm Values With the Exact Bounds Based on the Ordering Generated by the mlrb.

$\alpha = .05$					
^a 1 ^a 2 ^a 3	*1 *2 *3	Position in Ordering	t(x)	Algorithm Value t*(x)	mlrb
.20,.30,.50	2, 2, 1	50	3.329	3.273	3.070
	5, 0, 2	100	4.068	3.957	3.798
	6, 6, 0	200	4.887	4.789	4.708
•	9, 1, 3	400	5.980	5.892	5.795
.14, .16, .70	5, 4, 0	50	3.026	3.084	2.218
	2,10, 0	100	3.424	3.531	2.921
	2, 5, 1	200	4.407	4.086	3.729
.15,.41,.44	13, 0, 0	50	3.245	3.223	2.980
	5, 2, 1	100	4.028	3.860	3.699
	3, 3, 2	200	4.861	4.738	4.559
.32,.33,.35	0, 3, 2	50	3.492	3.518	3.256
	1, 5, 1	100	4.339	4.332	4.076
- was the strike st	1, 5, 3	200	5.198	5.234	4.993

[†]Reduction to k=2 case by combining a₁ and a₂.

Hence for k > 2 the algorithm may be applied to sample points positioned quite far along in the ordering without requiring values beyond the scope of Table 1, as is seen in the examples of Table 3.

The results detailed in Tables 2 and 3 suggest that the application of the proposed algorithm together with the combining of nearly equal  $a_i$ 's when indicated will nearly always produce confidence bounds for  $\theta(\lambda)$  subject to relative errors not exceeding 10 percent and often much less. Furthermore, the lower confidence bound for reliability r(x) given by (1.6) will exhibit a much smaller relative error since the relative error in approximations for t(x) applies only to the difference between the lower bound and one; a quantity which at worst is of the order of 1/10 in the contemplated applications.

In situations where very large sample sizes are available, it may happen that the observed numbers of failures exceed the limits of Table 1 even though the system reliability is high. For such cases the maximum likelihood ratio bound (mlrb) may be used. This approximatic confidence bound is obtained in the usual way from the maximum likelihood ratio statistic for testing the hypothesis  $\mathbf{H}_0: \theta(\lambda) = \theta_0$  versus all alternatives. The corresponding one-sided confidence bound may be shown (see Johns 1975) to be determined as follows: Let  $\hat{\mu}$  be the positive real root less than 1/(largest  $\mathbf{a}_i$  for which  $\mathbf{X}_i > 0$ ) of the equation

$$\chi_{1,2\alpha}^2 = 2 \sum_{i=1}^k X_i \left\{ \frac{a_i \hat{\mu}}{1 - a_i \hat{\mu}} + \log(1 - a_i \hat{\mu}) \right\},$$
 (4.5)

where  $\chi^2_{1,2\alpha}$  is the upper 100(2 $\alpha$ )-th percentage point of the chisquared distribution with one degree of freedom. Then the quantity

$$\hat{t}(X) = \sum_{i=1}^{k} a_i X_i / (1 - a_i \hat{\mu})$$
 (4.6)

is the approximate upper 1-  $\alpha$  level confidence bound for  $\theta(\underline{\lambda})$ . As  $\max(\lambda_1,\lambda_2,\ldots,\lambda_n) \to \infty$ , the mlrb  $\hat{t}(X)$  may be shown (see Johns 1975) to be asymptotically equivalent to

$$\tilde{\mathbf{t}}(\mathbf{X}) = \sum_{i=1}^{k} \mathbf{a}_{i} \mathbf{X}_{i} + \mathbf{z}_{\alpha} \begin{pmatrix} \mathbf{k} & \mathbf{z}_{1}^{2} \\ \mathbf{x} & \mathbf{a}_{1}^{2} \mathbf{X}_{1} \end{pmatrix}^{1/2}, \qquad (4.7)$$

where  $z_{\alpha}$  is the  $100\alpha-$ th percentage point of the standard normal distribution.

Neither of these approximate bounds is useful for sample points near the origin in the usual orderings, but  $\hat{t}$  given by (4.6) becomes sufficiently precise for application to sample points beyond the scope of Table 1. A comparison of  $t(x_1,x_2)$  and the corresponding m&rb for the last (i.e., the 100-th) points in each of the optimal orderings for the cases covered in Table 1 is given in Table 4.

Table 4.  $mlrb/t(x_1,x_2)$  for the 100-th Point in Each Ordering

	^a 1								
α	.05	.10	.15	.20	.25	.30	.35	.40	.45
.01	.62	.95	.97	.97	.98	.97	.98	.97	.99
.05	.72	.88	.96	.95	.98	.97	.99	.95	.96
.10	.89	.95	.95	.96	.97	1.00	.97	.96	.98

These results suggest that the mlrb possesses satisfactory precision for sample points beyond those listed in Table 1 for k=2 whenever  $a_1 \geq .10$ . The last column of Table 3 giving the mlrb values for the examples considered illustrates the fact that for k>2 the mlrb tends to underestimate the correct value of the bound for sample points within the range that can be dealt with using Table 1 and the algorithm.

Two potential sources of error for the lower confidence bound on system reliability remain to be discussed. They are (i) the Poisson approximation to the binomial distribution of the observed failures, and (ii) the approximation for reliability given in (1.2) and reflected in the formula (1.6) for the lower bound r(x). It is intuitively clear from (1.1) ff. that the "worst case" for the Poisson approximation should occur when k = 1; since to match a given k = 1 level of reliability, say 1-p, by a k > 1 case, we must have  $p = \sum_{i=1}^{k} p_i$ , so that the  $p_i$ 's must be smaller than p which tends to improve the Poisson approximation.

For the case k = 1 the familiar upper confidence bounds for a single Poisson parameter apply and the actual coverage probabilities for the proposed method (3.1) can be computed for any n and p from tables of the binomial distribution. The results of several such calculations are shown in Table 5.

Table 5. "Worst Case" Analysis (k=1). Minimum Coverage Probabilities for r(x).

Reliability			
q = 1 - p	.90	.95	.99
.95	.906	.954	.991
.90	.912	.958	.992
.80	.924	.965	.995
.70	.936	.972	.997

These values suggest that the approximations operate to make the proposed confidence bounds slightly conservative. It is interesting to observe that the minimum coverage probabilities are not drastically different from the nominal values, even for a true reliability as low as .70.

## 5. Acknowledgments and Remarks Concerning the Computations

The computations for Table 1 were performed on a Digital Equipment PDP-11/34 running under a UNIX operating system. The production program for these computations (506 lines) was written in the "C" language by the author. The method used for the

computation of the upper bounds was an implementation of (2.7); and as has been noted, the sample points were ordered by the two-step prospective sequential method. The tabled results were subjected to various checks to insure that the correct global maxima were found in each case.

The computations involved in obtaining the one-step look-ahead results and the tree analysis associated with the semi-Bayesian results discussed in Section 3 were done on an IBM 370/168 machine using Fortran programs developed by David Pasta. These programs compute the upper bounds by a somewhat more complicated method used in the earlier phases of the study and detailed in Johns (1975).

Thanks are also due to Barry Eynon who helped with the development of Figure 1 and the display of Table 1, and to Robert Bell and Keaven Anderson for careful readings of Sections 2.

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The basic problem of determining objective (frequentistic) confidence bounds for the reliability of a series system based on failure data from tests of the independent components is addressed. The notion of confidence bounds based on orderings imposed on the sample space is exploited, and certain optimality considerations are incorporated. Advantage is taken of the simplifications resulting from the use of the Poisson approximation for data from highly reliable components. Tables of exact confidence bounds are produced for the case of two-component systems. These bounds are computed using sample orderings

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